

White 09/875,177

=> d his

(FILE 'HCAPLUS' ENTERED AT 14:06:02 ON 03 FEB 2003)
DEL HIS Y

FILE 'REGISTRY' ENTERED AT 14:10:04 ON 03 FEB 2003
ACT WHITE2/A

L1 STR
L2 STR
L3 (10692) SEA FILE=REGISTRY SSS FUL L1 OR L2
L4 STR
L5 7922 SEA FILE=REGISTRY SUB=L3 SSS FUL L4

L6 8 S E3-13
E CHLORINE DIOXIDE/CN
L7 1 S E3
E CHLOROUS ACID/CN
L8 9 S E3-12
E CHLORINE/CN

L9 1 S E3
E CELLULOSE/CN
L10 1 S E3
E STARCH/CN

FILE 'HCAPLUS' ENTERED AT 14:14:02 ON 03 FEB 2003

L11 8559 S L5
L12 249403 S L9 OR L10 OR STARCH? OR CELLULOSE?
L13 147 S L11 AND L12
L14 192358 S L6 OR L7 OR L8 OR CHLORIN?
L15 4 S L13 AND L14
L16 12669 S L9/D OR L10/D
L17 40 S L16 AND L11
L18 1699077 S OXID?
L19 36 S L17 AND L18
L20 35 S L19 NOT L15

=> fil reg

FILE 'REGISTRY' ENTERED AT 14:24:27 ON 03 FEB 2003
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Property values tagged with IC are from the ZIC/VINITI data file
provided by InfoChem.

STRUCTURE FILE UPDATES: 2 FEB 2003 HIGHEST RN 484639-64-7
DICTIONARY FILE UPDATES: 2 FEB 2003 HIGHEST RN 484639-64-7

TSCA INFORMATION NOW CURRENT THROUGH MAY 20, 2002

Please note that search-term pricing does apply when
conducting SmartSELECT searches.

Crossover limits have been increased. See HELP CROSSOVER for details.

Experimental and calculated property data are now available. See HELP
PROPERTIES for more information. See STNote 27, Searching Properties
in the CAS Registry File, for complete details:
<http://www.cas.org/ONLINE/STN/STNOTES/stnotes27.pdf>

=> d his 11-110

(FILE 'HCAPLUS' ENTERED AT 14:06:02 ON 03 FEB 2003)
DEL HIS Y

FILE 'REGISTRY' ENTERED AT 14:10:04 ON 03 FEB 2003
ACT WHITE2/A

L1 STR
L2 STR
L3 (10692) SEA FILE=REGISTRY SSS FUL L1 OR L2
L4 STR
L5 7922 SEA FILE=REGISTRY SUB=L3 SSS FUL L4

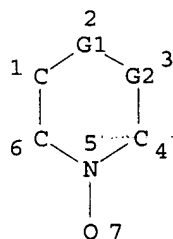
E CHLORINE DIOXIDE/CN
L6 8 S E3-13
E CHLOROUS ACID/CN
L7 1 S E3
E CHLORINE/CN
L8 9 S E3-12

*Structure from C16,12
17,19,21,28
covers of other
listed structures*

E CELLULOSE/CN
L9 1 S E3
E STARCH/CN
L10 1 S E3

=> d que stat 15

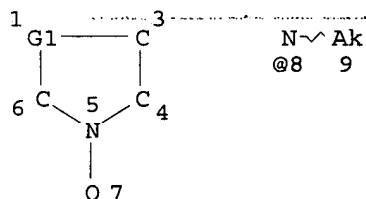
L1 STR



VAR G1=O/S/N/C
 REP G2=(0-1) CH2
 NODE ATTRIBUTES:
 CONNECT IS E4 RC AT 4
 CONNECT IS E4 RC AT 6
 DEFAULT MLEVEL IS ATOM
 DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
 RING(S) ARE ISOLATED OR EMBEDDED
 NUMBER OF NODES IS 7

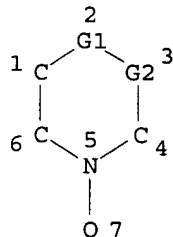
STEREO ATTRIBUTES: NONE
 L2 STR



VAR G1=CH2/S/O/NH/8
 NODE ATTRIBUTES:
 CONNECT IS E4 RC AT 4
 CONNECT IS E4 RC AT 6
 CONNECT IS E1 RC AT 9
 DEFAULT MLEVEL IS ATOM
 DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
 RING(S) ARE ISOLATED OR EMBEDDED
 NUMBER OF NODES IS 8

STEREO ATTRIBUTES: NONE
 L3 (10692)SEA FILE=REGISTRY SSS FUL L1 OR L2
 L4 STR



VAR G1=O/S/N/C
 REP G2=(0-1) CH2
 NODE ATTRIBUTES:
 CONNECT IS E1 RC AT 7
 DEFAULT MLEVEL IS ATOM
 DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
 RING(S) ARE ISOLATED OR EMBEDDED
 NUMBER OF NODES IS 7

STEREO ATTRIBUTES: NONE
 L5 7922 SEA FILE=REGISTRY SUB=L3 SSS FUL L4

100.0% PROCESSED 10692 ITERATIONS 7922 ANSWERS
 SEARCH TIME: 00.00.01

=> d que 16;d que 17;d que 18

L6 8 SEA FILE=REGISTRY ABB=ON PLU=ON ("CHLORINE DIOXIDE"/CN OR
 "CHLORINE DIOXIDE (37CLO2)"/CN OR "CHLORINE DIOXIDE (CL17O2)"/C
 N OR "CHLORINE DIOXIDE (OCLO)"/CN OR "CHLORINE DIOXIDE
 ION(1+)"/CN OR "CHLORINE DIOXIDE ION(1-)"/CN OR "CHLORINE
 DIOXIDE MONOHYDRATE"/CN OR "CHLORINE DIOXIDE RADICAL"/CN OR
 "CHLORINE DIOXIDE, HYDRATE"/CN OR "CHLORINE DIOXIDE-35CL"/CN
 OR "CHLORINE DIOXIDE-37CL"/CN)

L7 1 SEA FILE=REGISTRY ABB=ON PLU=ON "CHLOROUS ACID"/CN

L8 9 SEA FILE=REGISTRY ABB=ON PLU=ON (CHLORINE/CN OR "CHLORINE
 (35CL2)"/CN OR "CHLORINE (35CL37CL)"/CN OR "CHLORINE (35CL37CL1
 +)"/CN OR "CHLORINE (37CL)"/CN OR "CHLORINE (37CL2)"/CN OR
 "CHLORINE (CL1+)"/CN OR "CHLORINE (CL2+)"/CN OR "CHLORINE
 (CL21+)"/CN OR "CHLORINE (CL3)"/CN)

=> d que 19;d 19

L9 1 SEA FILE=REGISTRY ABB=ON PLU=ON CELLULOSE/CN

L9 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2003 ACS

RN 9004-34-6 REGISTRY

CN Cellulose (8CI, 9CI) (CA INDEX NAME)

OTHER NAMES:

CN .alpha.-Cellulose

CN .beta.-Amylose

CN 3mAQUACEL

CN 402-2B

CN Alicell LV

CN Alpha Cel PB 25

CN Alphafloc

CN Arbocel

CN Arbocel B 00
 CN Arbocel B 600
 CN Arbocel B 600/30
 CN Arbocel B 800
 CN Arbocel B 820C
 CN Arbocel BC 1000
 CN Arbocel BC 200
 CN Arbocel BE 600
 CN Arbocel BE 600/10
 CN Arbocel BE 600/20
 CN Arbocel BE 600/30
 CN Arbocel BEM
 CN Arbocel BFC 200
 CN Arbocel BWW 40
 CN Arbocel DC 1000
 CN Arbocel FD 00
 CN Arbocel FD 600/30
 CN Arbocel FIC 200
 CN Arbocel FT 40
 CN Arbocel FT 600/30H
 CN Arbocel G 350
 CN Arbocel TF 30HG
 CN Arbocel TP 40
 CN Avicel
 CN Avicel 101
 CN Avicel 102
 CN Avicel 2330
 CN Avicel 2331
 CN Avicel 955
 CN Avicel CL 611
 CN Avicel E 200
 CN Avicel F 20
 CN Avicel FD 100
 CN Avicel FD 101
 CN Avicel FD-F 20
 CN Avicel M 06
 CN Avicel M 15
 CN Avicel M 25
 CN Avicel NT 020
 CN Avicel NT 050
 CN Avicel PH 101
 CN Avicel PH 102

ADDITIONAL NAMES NOT AVAILABLE IN THIS FORMAT - Use FCN, FIDE, or ALL for
 DISPLAY

DR 12656-52-9, 9012-19-5, 9037-50-7, 9076-30-6, 58968-67-5, 99331-82-5,
 67016-75-5, 67016-76-6, 51395-76-7, 61991-21-7, 61991-22-8, 68073-05-2,
 70225-79-5, 74623-16-8, 75398-83-3, 77907-70-1, 84503-75-3, 89468-66-6,
 39394-43-9, 209533-95-9

MF Unspecified

CI PMS, COM, MAN

PCT Manual registration, Polyother, Polyother only

LC STN Files: ADISNEWS, AGRICOLA, ANABSTR, BIOBUSINESS, BIOSIS, BIOTECHNO,
 CA, CABA, CANCERLIT, CAPLUS, CASREACT, CBNB, CEN, CHEMCATS, CHEMLIST,
 CHEMSAFE, CIN, CSCHEM, CSNB, DDFU, DIOGENES, DRUGU, EMBASE, IFICDB,
 IFIPAT, IFIUDB, IPA, MEDLINE, MRCK*, MSDS-OHS, NAPRALERT, NIOSHTIC,
 PIRA, PROMT, RTECS*, TOXCENTER, TULSA, ULIDAT, USAN, USPAT2, USPATFULL,
 VTB

(*File contains numerically searchable property data)

Other Sources: DSL**, EINECS**, TSCA**

(**Enter CHEMLIST File for up-to-date regulatory information)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

62943 REFERENCES IN FILE CA (1962 TO DATE)

7251 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA

63005 REFERENCES IN FILE CAPLUS (1962 TO DATE)

=> d que l10;d l10

L10 1 SEA FILE=REGISTRY ABB=ON PLU=ON STARCH/CN

L10 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2003 ACS

RN 9005-25-8 REGISTRY

CN **Starch** (8CI, 9CI) (CA INDEX NAME)

OTHER NAMES:

CN .alpha.-Starch

CN Absorbo HP

CN Ace P 320

CN Actobody TP 2

CN Aeromyl 115

CN Agglofroid 009

CN Agglofroid 313E

CN Allbond 200

CN Alphajel KS 37

CN Alstar B

CN Amaizo 100

CN Amaizo 213

CN Amaizo 310

CN Amaizo 5

CN Amaizo 71

CN Amaizo 710

CN Amaizo W 13

CN Amalean I-A 2131

CN Amalean I-A 7081

CN Amicoa

CN Amidex 4001

CN Amigel

CN Amigel 12014

CN Amigel 30076

CN Amijel VA 160

CN Amilys 100

CN Amycol HF

CN Amycol W

CN Amylogum

CN Amylomaize starch

CN Amylomaize VII

CN Amylon 70

CN Amylose, mixt. with amylopectin

CN Amylox 1

CN Amylum

CN Amyren 14

CN Amyren 71

CN Amysil K

CN Amyzet TK

CN Argo Corn Starch

CN Arrowroot starch

CN AS 225

CN AS 225 (starch)

CN Atomy1
CN Aytex P
CN B 200
CN B 200 (polysaccharide)
CN Bakeup YT 10
CN Bioren 28
CN Bioren 80

ADDITIONAL NAMES NOT AVAILABLE IN THIS FORMAT - Use FCN, FIDE, or ALL for
DISPLAY

DEF A high-polymeric carbohydrate material primarily composed of amylopectin
and amylose. It is usually derived from cereal grains such as corn, wheat
and sorghum, and from roots and tubers such as potatoes and tapioca. It
includes starch which has been pregelatinized by heating in the presence
of water.

DR 9057-05-0, 53262-79-6, 131800-97-0, 60496-95-9, 67674-80-0, 75138-75-9,
75398-82-2, 154636-77-8, 152987-55-8, 85746-25-4, 42616-76-2, 53112-52-0

MF Unspecified

CI COM, MAN

LC STN Files: ADISNEWS, AGRICOLA, ANABSTR, AQUIRE, BIOBUSINESS, BIOSIS,
BIOTECHNO, CA, CABA, CANCERLIT, CAPLUS, CASREACT, CBNB, CEN, CHEMCATS,
CHEMLIST, CIN, CSCHM, CSNB, DDFU, DRUGU, EMBASE, IFICDB, IFIPAT,
IFIUDB, IPA, MEDLINE, MSDS-OHS, NAPRALERT, NIOSHTIC, PDLCOM*, PIRA,
PROMT, RTECS*, TOXCENTER, USAN, USPAT2, USPATFULL, VTB
(*File contains numerically searchable property data)

Other Sources: DSL**, EINECS**, TSCA**

(**Enter CHEMLIST File for up-to-date regulatory information)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

54307 REFERENCES IN FILE CA (1962 TO DATE)

6021 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA

54372 REFERENCES IN FILE CAPLUS (1962 TO DATE)

FILE 'HCAPLUS' ENTERED AT 14:14:02 ON 03 FEB 2003

=> fil hcaplus

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FILE COVERS 1907 - 3 Feb 2003 VOL 138 ISS 6

FILE LAST UPDATED: 2 Feb 2003 (20030202/ED)

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PLEAChemical Abstracts after December

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=> d his 111-

L11 8559 S L5
L12 249403 S L9 OR L10 OR STARCH? OR CELLULOSE?
L13 147 S L11 AND L12
L14 192358 S L6 OR L7 OR L8 OR CHLORIN?
L15 4 S L13 AND L14
L16 12669 S L9/D OR L10/D
L17 40 S L16 AND L11
L18 1699077 S OXID?
L19 36 S L17 AND L18
L20 35 S L19 NOT L15

=> d .ca hitstr 115 1-4;d .ca hitstr 120 1-35

L15 ANSWER 1 OF 4 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 2002:944512 HCAPLUS
DOCUMENT NUMBER: 138:14801
TITLE: Hypochlorite-free method for preparation of stable carboxylated carbohydrate products
INVENTOR(S): Komen, Joseph L.; Weerawarna, Ananda S.; Jewell, Richard A.
PATENT ASSIGNEE(S): Weyerhaeuser Company, USA
SOURCE: Eur. Pat. Appl., 20 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|-----------------------------------------------------------------------------------------------------------|------|----------|-----------------|----------|
| EP 1264845 | A2 | 20021211 | EP 2002-253744 | 20020529 |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR | | | | |

PRIORITY APPLN. INFO.: US 2001-875177 A 20010606

AB A method of making a carboxylated carbohydrate is disclosed, with cellulose being a preferred carbohydrate material. Carboxylated cellulose fibers, whose fiber strength and d.p. is not significantly sacrificed, can be produced. The method involves the use of a catalytic amt. of a hindered cyclic oxammonium compd. as a primary oxidant and ClO₂ as a secondary oxidant in an aq. environment. The oxammonium compds. may be formed in situ from their corresponding amine, hydroxylamine, or nitroxyl compds. The oxidized cellulose may be stabilized against d.p. loss and color reversion by further treatment with an oxidant, e.g. NaClO₂ or a ClO₂/H₂O₂ mixt. Alternatively, it may be treated with a reducing agent, e.g. NaBH₄. In the case of cellulose, the method results in a high percentage of carboxyl groups located at the fiber surface. The product is esp. useful as a papermaking fiber where it contributes strength and

has a higher attraction for cationic additives. The product is also useful as an additive to recycled fiber to increase strength. The method can be used to improve properties of either virgin or recycled cellulose pulp fibers. It does not require high .alpha.-cellulose fiber, but is suitable for regular market pulps.

IC ICM C08B015-04
ICS C08B031-18

CC 43-3 (Cellulose, Lignin, Paper, and Other Wood Products)

ST hypochlorite free prepn stable carboxylated **cellulose** fiber
pulping papermaking

IT **Cellulose** pulp
(carboxylated; hypochlorite-free catalytic oxidn. for prepn. of stable
carboxylated **cellulose** fibers for pulping and papermaking)

IT Oxidation
Paper
(hypochlorite-free catalytic oxidn. for prepn. of stable carboxylated
cellulose fibers for pulping and papermaking)

IT 9004-34-6D, **Cellulose**, carboxylated 9005-25-8D
, **Starch**, carboxylated
RL: CPS (Chemical process); PEP (Physical, engineering or chemical
process); PROC (Process)
(fibers; hypochlorite-free catalytic oxidn. for prepn. of stable
carboxylated **cellulose** fibers for pulping and papermaking)

IT 768-66-1D, 2,2,6,6-Tetramethylpiperidine, reaction products with
chlorine dioxide 2564-83-2, Tempo 7722-84-1, Hydrogen
peroxide, uses 7758-19-2 10049-04-4D, **Chlorine**
dioxide, reaction products with triacetone amine ketals 36793-28-9D,
reaction products with **chlorine** dioxide 53825-32-4D,
7,7,9,9-Tetramethyl-1,4-dioxo-8-azaspiro[4.5]decane-2-methanol, reaction
products with **chlorine** dioxide
RL: NUU (Other use, unclassified); USES (Uses)
(oxidizing agent; hypochlorite-free catalytic oxidn. for prepn. of
stable carboxylated **cellulose** fibers for pulping and
papermaking)

IT 16940-66-2, Sodium borohydride (NaBH₄)
RL: NUU (Other use, unclassified); USES (Uses)
(reducing agent; hypochlorite-free catalytic oxidn. for prepn. of
stable carboxylated **cellulose** fibers for pulping and
papermaking)

IT 9004-34-6D, **Cellulose**, carboxylated 9005-25-8D
, **Starch**, carboxylated
RL: CPS (Chemical process); PEP (Physical, engineering or chemical
process); PROC (Process)
(fibers; hypochlorite-free catalytic oxidn. for prepn. of stable
carboxylated **cellulose** fibers for pulping and papermaking)

RN 9004-34-6 HCAPLUS

CN Cellulose (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

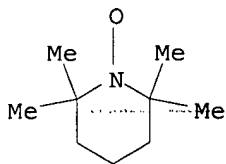
RN 9005-25-8 HCAPLUS
CN Starch (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

IT 2564-83-2, Tempo 10049-04-4D, **Chlorine**
dioxide, reaction products with triacetone amine ketals
RL: NUU (Other use, unclassified); USES (Uses)
(oxidizing agent; hypochlorite-free catalytic oxidn. for prepn. of
stable carboxylated **cellulose** fibers for pulping and
papermaking)

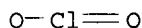
RN 2564-83-2 HCAPLUS

CN 1-Piperidinyloxy, 2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



RN 10049-04-4 HCAPLUS

CN Chlorine oxide (ClO2) (8CI, 9CI) (CA INDEX NAME)



L15 ANSWER 2 OF 4 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2002:521462 HCAPLUS

DOCUMENT NUMBER: 137:88442

TITLE: Incensole and furanogermacrens and compounds in treatment for inhibiting neoplastic lesions and microorganisms

INVENTOR(S): Shanahan-Pendergast, Elisabeth

PATENT ASSIGNEE(S): Ire.

SOURCE: PCT Int. Appl., 68 pp...

CODEN: PIXXD2

DOCUMENT TYPE:

Patent

LANGUAGE:

English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---------------------------------------------------------------------------------------------------|------|----------|-----------------|----------|
| WO 2002053138 | A2 | 20020711 | WO 2002-IE1 | 20020102 |
| WO 2002053138 | A3 | 20020919 | | |
| W: AE, AG, AT, AU, BB, BG, CA, CH, CN, CO, CU, CZ, LU, LV, MA, MD, UA, UG, US, VN, YU, RU, TJ, TM | | | | |
| RW: GH, GM, KE, LS, MW, SD, SL, SZ, UG, AT, BE, CH, CY, DE, ES, FI, ML, MR, NE, SN, TD, TG | | | | |

PRIORITY APPLN. INFO.: IE 2001-2 A 20010102

OTHER SOURCE(S): MARPAT 137:88442

AB The invention discloses the use of incensole and/or furanogermacrens, derivs. metabolites and precursors thereof in the treatment of neoplasia, particularly resistant neoplasia and immunodysregulatory disorders. These compds. can be administered alone or in combination with conventional chemotherapeutic, antiviral, antiparasite agents, radiation and/or surgery. Incensole and furanogermacren and their mixt. showed antitumor activity against various human carcinomas and melanomas and antimicrobial activity against Staphylococcus aureus and Enterococcus faecalis.

IC A61K031-00

CC 1-6 (Pharmacology)

Section cross-reference(s): 10, 63

IT Porphyrins

RL: PAC (Pharmacological activity); THU (Therapeutic use); BIOL (Biological study); USES (Uses)

(chlorins, benzo-, pharmaceutical formulation further including; incensole and furanogermacrens and compds. as antitumor and

antimicrobial agents)

IT Porphyrins
 RL: PAC (Pharmacological activity); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
 (chlorins, pharmaceutical formulation further including; incensole and furanogermacrens and compds. as antitumor and antimicrobial agents)

IT 80-62-6, Methyl methacrylate 2867-47-2, (2-Dimethylaminoethyl) methacrylate 9004-38-0, Cellulose acetate phthalate 34346-01-5, Poly(lactic acid-glycolic acid) 441015-98-1
 RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
 (enteric coating of; incensole and furanogermacrens and compds. as antitumor and antimicrobial agents)

IT 65093-40-5, Cytarabine ocfosfate 65222-35-7, Pazelliptine 65271-80-9, Mitoxantrone 65646-68-6, Fenretinide 65807-02-5, Goserelin 65886-71-7, Fazarabine 66569-27-5, Sparfosate Sodium 66849-34-1, Dexifosfamide 67699-41-6, Vinzolidine Sulfate 68278-23-9, Eflornithine Hydrochloride 68475-42-3, Anagrelide 69839-83-4, Didox 70052-12-9, Eflornithine 70384-29-1, Peplomycin Sulfate 70476-82-3, Mitoxantrone Hydrochloride 70641-51-9, Edelfosine 70711-40-9, Ametantrone Acetate 71294-60-5, Rohitukine 71439-68-4, Bisantrene Hydrochloride 71486-22-1, Vinorelbine 71522-58-2, Forfenimex 71628-96-1, Menogaril 72238-02-9D, Retelliptine, demethyl derivs. 72496-41-4, Pirarubicin 72629-69-7, Sarcophytol A 72732-56-0, Piritrexim 72741-87-8, Swainsonine 73105-03-0, Pentamustine 74149-70-5, Parabactin 74381-53-6, Leuprolide Acetate 74790-08-2, Spiroplatin 75219-46-4, Atrimustine 75330-75-5, Lovastatin 75607-67-9, Fludarabine Phosphate 75775-33-6D, Purpurin, compds. 75957-60-7, Splenopentin 76932-56-4, Nafarelin 77016-85-4, Plomestane 77327-05-0, Didemnin B 77599-17-8, Panomifene 77858-21-0, Velaresol 78113-36-7, Romurtide 78186-34-2, Bisantrene 79778-41-9, Neridronic acid 79831-76-8, Castanospermine 80451-05-4, Cecropin B 80576-83-6, Edatrexate 80663-95-2 80841-47-0, Asulacrine 81424-67-1, Caracemide 81965-43-7, SarCNU 82230-03-3, Carbetimer 82413-20-5, Droloxifene 82707-54-8, Neutral endopeptidase 82855-09-2D, Combretastatin, analogs 82952-64-5, Trimetrexate Glucuronate 83086-73-1, Tubulazole Hydrochloride 83150-76-9, Octreotide 83200-11-7, Vinepidine Sulfate 83519-04-4, Ilmofofosine 83997-75-5, Iododoxorubicin 84030-84-2, Telluropyrylium 84088-42-6, Roquinimex 84371-65-3, Mifepristone 84412-94-2, Ruboxyl 85465-82-3, Thymotrinan 85622-93-1, Temozolomide 85754-59-2, Ambamustine 85969-07-9, Budotitane 85977-49-7, Tauromustine 86976-56-9, Betaclamycins 87005-03-6, Panaxytriol 87434-82-0, Dezaguanine Mesylate 87806-31-3, Porfimer Sodium 87810-56-8, Fostriecin 87860-39-7, Fostriecin Sodium 88303-60-0, Losoxantrone 88303-61-1, Losoxantrone Hydrochloride 89565-68-4, Tropisetron 89778-26-7, Toremifene 89778-27-8, Toremifene Citrate 90357-06-5, Bicalutamide 90996-54-6, Rhizoxin 92047-76-2, Tetrachlorodecaoxide 92118-27-9, Fotemustine 92788-10-8, Rogletimide 92803-82-2, Aphidicolin glycinate 94079-80-8, Cicaprost 95058-81-4, Gemcitabine 95734-82-0, Nedaplatin 95933-72-5, Amidox 96201-88-6, Brequinar Sodium 96301-34-7, Atamestane 96346-61-1, Onapristone 96389-68-3, Crisnatol 96389-69-4, Crisnatol Mesylate 96392-96-0, Dexormaplatin 96892-57-8, Hepsulfam 97068-30-9, Elsamitrucin 97534-21-9, Merbarone 97682-44-5, Irinotecan 97752-20-0, Droloxifene Citrate 97919-22-7 98319-26-7, Finasteride 98383-18-7, Ecomustine 98631-95-9, Sobuzoxane 99009-20-8, Pyrazoloacridine 99011-02-6, Imiquimod 99283-10-0, Molgramostim 99614-02-5, Ondansetron 100286-90-6, Irinotecan Hydrochloride 100324-81-0, Lisofylline 102396-24-7, Jasplakinolide 102676-31-3, Fadrozole Hydrochloride 102676-47-1, Fadrozole 102822-56-0, Mannostatin A 103222-11-3, Vapreotide 103612-80-2

104493-13-2, Adecyphenol 105118-12-5, Piroxantrone Hydrochloride
 105149-04-0, Osaterone 105615-58-5, Oxaunomycin 105844-41-5,
 Plasminogen activator inhibitor 106096-93-9D, Basic Fibroblast growth
 factor, saporin conjugates 106400-81-1, Lometrexol 107000-34-0,
 Zanolterone 107256-99-5, Tamoxifen methiodide 107868-30-4, Exemestane
 108736-35-2, Lanreotide 108852-90-0, Nemorubicin 109837-67-4,
 Cycloplatam 110267-81-7, Amrubicin 110311-27-8, Sulofenur
 110314-48-2, Adozelesin 110690-43-2, Emitefur 110942-02-4, Aldesleukin
 110942-08-0, Luprolide 111490-36-9, Zeniplatin 111523-41-2, Enloplatin
 112515-43-2, Topsentin 112522-64-2, Acetyldinaline 112809-51-5,
 Letrozole 112859-71-9, Fluasterone 112887-68-0, Raltitrexed
 112965-21-6, Calcipotriol 114084-78-5, Ibandronic acid 114285-68-6,
 Lentinan sulfate 114517-02-1, Fosquidone 114977-28-5, Taxotere
 115150-59-9, Antagonist G 115308-98-0, Tallimustine 115566-02-4,
 Bistratene A 115575-11-6, Liarozole 115956-12-2, Dolasetron
 116057-75-1, Idoxifene 117048-59-6, Combretastatin A4 117091-64-2,
 Etoposide Phosphate 118292-40-3, Tazarotene 119169-78-7, Epristeride
 119413-54-6, Topotecan Hydrochloride 119813-10-4, Carzelesin
 120287-85-6, Cetorelix 120408-07-3, Lometrexol Sodium 120500-15-4,
 Leinamycin 120511-73-1, Anastrozole 120685-11-2, Benzoylstauosporine
 121181-53-1, Filgrastim 121263-19-2, Calphostin C 121288-39-9,
 Loxoribine 121547-04-4, Mirimostim 122111-03-9, Gemcitabine
 Hydrochloride 122341-38-2, Temoporfin 122431-96-3 122898-63-9,
 Phenazinomycin 123040-69-7, Azasetron 123258-84-4, Itasetron
 123760-07-6, Zinostatin stimalamer 123774-72-1, Sargramostim
 123830-79-5, Teloxantrone Hydrochloride 123948-87-8, Topotecan
 124012-42-6, Galocitabine 124689-65-2D, Cryptophycin A, derivs.
 124784-31-2, Erbulozole 124904-93-4, Ganirelix 125317-39-7,
 Vinorelbine Tartrate 125392-76-9, Acylfulvene 125533-88-2, Mofarotene
 126297-39-0, Lissoclinamide 7 126443-96-7, Napavin 127984-74-1,
 Lanreotide Acetate 128505-88-4, Naphterpin 128768-09-2, Placetin A
 128768-11-6, Placetin B 129497-78-5, Verteporfin 129564-92-7, Azatoxin
 129655-21-6, Bizelesin 129731-10-8, Vorozole 130167-69-0, Pegaspargase
 130288-24-3, Duocarmycin SA 130364-39-5, Rubiginone B1 130370-60-4,
 Batimastat 131190-63-1, Saintopin 132036-88-5, Ramosetron
 132073-72-4, Tetraromine 133432-71-0, Peldesine 134088-74-7,
 Nartograstim 134381-30-9, Conagenin 134523-84-5 134633-29-7,
 Tecogalan Sodium 134861-62-4, Dioxamycin 135257-45-3, Crambesidin 816
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 Lobaplatin 135819-69-1 135968-09-1, Lenograstim 137018-54-3,
 Okicenone 137099-09-3, Turosteride 137219-37-5, Dehydrodidemnin B
 137647-92-8, Axinastatin 1 137964-32-0 139755-79-6, Safingol
 Hydrochloride 140207-93-8, Pentosan polysulfate sodium 140703-49-7,
 Meterelin 142880-36-2, Ilomastat 144885-51-8, Sodium borocaptate
 144916-42-7, Sonermin 145124-30-7, Bisnafide dimesylate 145858-50-0,
 Liarozole Hydrochloride 146426-40-6, Flavopiridol 148317-76-4, Oracin
 148584-53-6 148717-58-2, Palauamine 148717-90-2, Squalamine
 149204-42-2, Kahalalide F 149260-80-0, Mycaperoxide B 149355-77-1,
 Lamellarin-N triacetate

RL: PAC (Pharmacological activity); THU (Therapeutic use); BIOL
 (Biological study); USES (Uses)

(pharmaceutical formulation further including; incensole and
 furanogermacrens and compds. as antitumor and antimicrobial agents)

IT 84412-94-2, Ruboxyl

RL: PAC (Pharmacological activity); THU (Therapeutic use); BIOL
 (Biological study); USES (Uses)

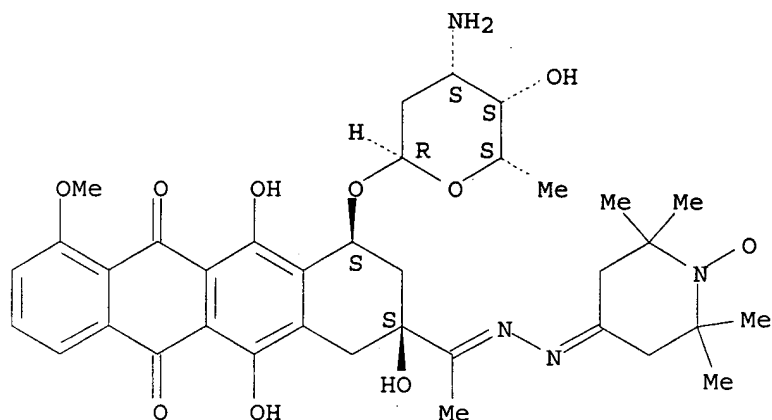
(pharmaceutical formulation further including; incensole and
 furanogermacrens and compds. as antitumor and antimicrobial agents)

RN 84412-94-2 HCAPLUS

CN 1-Piperidinyloxy, 4-[[1-[(2S,4S)-4-[(3-amino-2,3,6-trideoxy-.alpha.-L-lyxo-

hexopyranosyl)oxy]-1,2,3,4,6,11-hexahydro-2,5,12-trihydroxy-7-methoxy-6,11-dioxo-2-naphthacenyl]ethylidene]hydrazono]-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)

Absolute stereochemistry.
Double bond geometry unknown.



L15 ANSWER 3 OF 4 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2001:300943 HCAPLUS

DOCUMENT NUMBER: 134:312682

TITLE: Method of making carboxylated cellulose fibers and products

INVENTOR(S): Jewell, Richard A.; Komen, Joseph Lincoln; Su, Bing; Weerawarna, S. Ananda; Li, Yong

PATENT ASSIGNEE(S): Weyerhaeuser Company, USA

SOURCE: PCT Int. Appl., 52 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

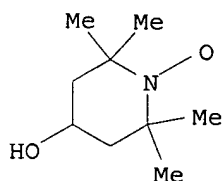
| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|----------|-----------------|----------|
| WO 2001029309 | A1 | 20010426 | WO 2000-US27837 | 20001006 |
| W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM | | | | |
| RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG | | | | |
| US 6379494 | B1 | 20020430 | US 1999-418909 | 19991015 |
| EP 1238142 | A1 | 20020911 | EP 2000-970682 | 20001006 |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL | | | | |

PRIORITY APPLN. INFO.: US 1999-418909 A 19991015
US 1999-272137 A2 19990319
WO 2000-US27837 W 20001006

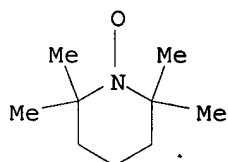
OTHER SOURCE(S): MARPAT 134:312682

- AB A method of making highly carboxylated cellulose fibers whose fiber strength and d.p. is not significantly sacrificed comprises (1) oxidizing the cellulose fiber (kraft pulp) with a cyclic nitroxide free radical compd. as a primary oxidant and a hypohalite salt as a secondary oxidant under aq. alk. conditions; and (2) treating the oxidized cellulose against d.p. loss in aq. suspension with a stabilizing agent selected from the group consisting of reducing agent and tertiary oxidizing agent. The product is esp. useful as a papermaking fiber where it contributes strength and has a higher attraction for cationic additives, and it is also useful as an additive to recycled fiber to increase strength.
- IC ICM D21C009-00
ICS D21H011-20; C08B015-04
- CC 43-6 (Cellulose, Lignin, Paper, and Other Wood Products)
- ST carboxylated **cellulose** fiber oxidn stabilization; paper pulp
carboxylated **cellulose** fiber
- IT Oxidation catalysts
Oxidizing agents
Reducing agents
(**cellulose** fiber treated with; method of making carboxylated **cellulose** fibers and products for papermaking)
- IT **Cellulose** pulp
(kraft; method of making carboxylated **cellulose** fibers and products for papermaking)
- IT Carboxyl group
Paper
Stabilizing agents
(method of making carboxylated **cellulose** fibers and products for papermaking)
- IT **Cellulose** pulp
(sulfite; method of making carboxylated **cellulose** fibers and products for papermaking)
- IT Paper
(tissue; method of making carboxylated **cellulose** fibers and products for papermaking)
- IT 2226-96-2, 4-Hydroxy-TEMPO 2564-83-2, TEMPO
2564-87-6 2896-70-0, 4-Oxo-TEMPO 3229-53-6
3264-93-5 14691-88-4, 4-Amino-TEMPO 14691-89-5
31645-22-4 95407-69-5, 4-Methoxy-TEMPO
98254-32-1 154186-17-1 184160-78-9
RL: CAT (Catalyst use); NUU (Other use, unclassified); USES (Uses)
(**cellulose** fiber treated with; method of making carboxylated **cellulose** fibers and products for papermaking)
- IT 7647-15-6, Sodium bromide, uses 7681-52-9, Sodium hypochlorite
7722-84-1, Hydrogen peroxide, uses 7758-19-2, Sodium chlorite
10049-04-4, Chlorine dioxide 16940-66-2, Sodium
borohydride 335133-08-9, Stabrex ST 70
RL: NUU (Other use, unclassified); USES (Uses)
(**cellulose** fiber treated with; method of making carboxylated **cellulose** fibers and products for papermaking)
- IT 150980-92-0P
RL: CAT (Catalyst use); IMF (Industrial manufacture); NUU (Other use, unclassified); PREP (Preparation); USES (Uses)
(**cellulose** fiber treated with; prepn. of nitroxide free radical for making carboxylated **cellulose** fibers and products for papermaking)
- IT 36793-27-8P
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(prepn. of nitroxide free radical for making carboxylated **cellulose** fibers and products for papermaking)

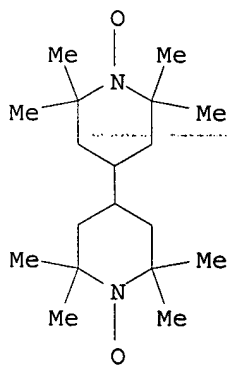
IT 104-15-4, p-Toluenesulfonic acid, reactions 107-21-1, Ethylene glycol, reactions 826-36-8, 2,2,6,6-Tetramethyl-4-piperidone
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (prepn. of nitroxide free radical for making carboxylated cellulose fibers and products for papermaking)
 IT 2226-96-2, 4-Hydroxy-TEMPO 2564-83-2, TEMPO
 2564-87-6 2896-70-0, 4-Oxo-TEMPO 3229-53-6
 14691-88-4, 4-Amino-TEMPO 14691-89-5 31645-22-4
 95407-69-5, 4-Methoxy-TEMPO 98254-32-1
 154186-17-1 184160-78-9
 RL: CAT (Catalyst use); NUU (Other use, unclassified); USES (Uses)
 (cellulose fiber treated with; method of making carboxylated cellulose fibers and products for papermaking)
 RN 2226-96-2 HCAPLUS
 CN 1-Piperidinyloxy, 4-hydroxy-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



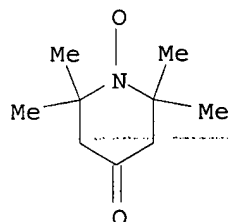
RN 2564-83-2 HCAPLUS
 CN 1-Piperidinyloxy, 2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



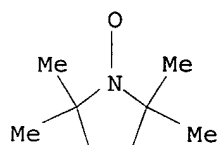
RN 2564-87-6 HCAPLUS
 CN [4,4'-Bipiperidine]-1,1'-diylbis(oxy), 2,2,2',2',6,6,6',6'-octamethyl- (9CI) (CA INDEX NAME)



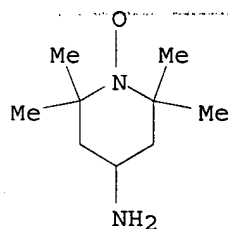
RN 2896-70-0 HCAPLUS
 CN 1-Piperidinyloxy, 2,2,6,6-tetramethyl-4-oxo- (9CI) (CA INDEX NAME)



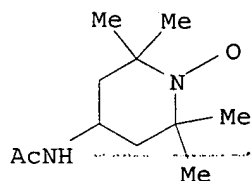
RN 3229-53-6 HCAPLUS
CN 1-Pyrrolidinyl-2,2,5,5-tetramethyl- (7CI, 8CI, 9CI) (CA INDEX NAME)



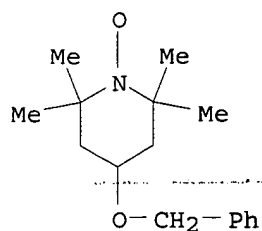
RN 14691-88-4 HCAPLUS
CN 1-Piperidinyl-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



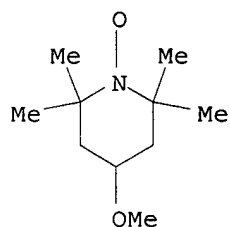
RN 14691-89-5 HCAPLUS
CN 1-Piperidinyl-2,2,6,6-tetramethyl-4-amino-1-oxide (9CI) (CA INDEX NAME)



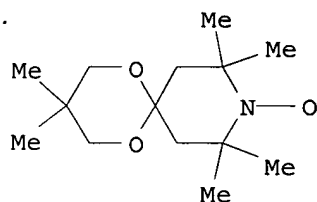
RN 31645-22-4 HCAPLUS
CN 1-Piperidinyl-2,2,6,6-tetramethyl-4-(phenylmethoxy)-1-oxide (9CI) (CA INDEX NAME)



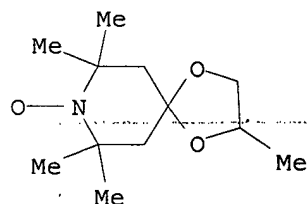
RN 95407-69-5 HCAPLUS
 CN 1-Piperidinyloxy, 4-methoxy-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



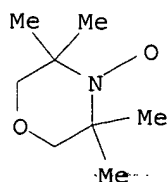
RN 98254-32-1 HCAPLUS
 CN 1,5-Dioxa-9-azaspiro[5.5]undec-9-yloxy, 3,3,8,8,10,10-hexamethyl- (9CI)
 (CA INDEX NAME)



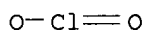
RN 154186-17-1 HCAPLUS
 CN 1,4-Dioxa-8-azaspiro[4.5]dec-8-yloxy, 2,7,7,9,9-pentamethyl- (9CI) (CA INDEX NAME)



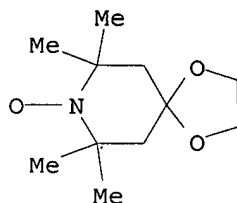
RN 184160-78-9 HCAPLUS
 CN 4-Morpholinylloxy, 3,3,5,5-tetramethyl- (9CI) (CA INDEX NAME)



IT 10049-04-4, Chlorine dioxide
 RL: NUU (Other use, unclassified); USES (Uses)
 (cellulose fiber treated with; method of making carboxylated
 cellulose fibers and products for papermaking)
 RN 10049-04-4 HCAPLUS
 CN Chlorine oxide (ClO2) (8CI, 9CI) (CA INDEX NAME)



IT 150980-92-0P
 RL: CAT (Catalyst use); IMF (Industrial manufacture); NUU (Other use,
 unclassified); PREP (Preparation); USES (Uses)
 (cellulose fiber treated with; prepn. of nitroxide free
 radical for making carboxylated cellulose fibers and products
 for papermaking)
 RN 150980-92-0 HCAPLUS
 CN 1,4-Dioxaspiro[4.5]dec-8-yloxy, 7,7,9,9-tetramethyl- (9CI) (CA
 INDEX NAME)

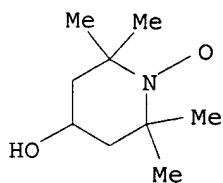


REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS
 RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L15 ANSWER 4 OF 4 HCAPLUS COPYRIGHT 2003 ACS
 ACCESSION NUMBER: 1984:553775 HCAPLUS
 DOCUMENT NUMBER: 101:153775
 TITLE: Studies on inclusion behaviors of .beta.-cyclodextrin-
 starch composite gel by spin probe method
 AUTHOR(S): Hirayama, C.; Kosugi, Y.; Motozato, Y.
 CORPORATE SOURCE: Fac. Eng., Kumamoto Univ., Komamoto, 860, Japan
 SOURCE: Journal of Macromolecular Science, Chemistry (1984),
 A21(11-12), 1487-92
 CODEN: JMCHBD; ISSN: 0022-233X
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 AB The competitive inclusions between 4-hydroxy-2,2,6,6-tetramethyl-1-
 piperidinyloxy (I) [2226-96-2] and chloro-substituted AcOH in
 composite gel, prepd. from .beta.-cyclodextrin (II) and starch in 1:2
 ratio and crosslinked by epichlorohydrin, was monitored by ESR

spectroscopy. The unusual temp. dependence of rotational correlation frequencies of I, calcd. by employing the equation of D. Kivelson (1956), suggested that gradual loosening of gel linkages occurs with an increase of temp. from 30.degree. to 60.degree.; the increment of free rotation of I was canceled by the increased amt. of I trapped in the loosened gel. The gel was a better host than II for dichloro-, monochloro-, and unsubstituted AcOH at least below 50.degree.. Trichloroacetic acid [76-03-9] was included in the gel as much as dichloroacetic acid [79-43-6], but more than monochloroacetic acid [79-11-8] and AcOH [64-19-7] which compete comparable with I inclusion.

CC 44-6 (Industrial Carbohydrates)
 ST cyclodextrin **starch** gel hydroxytetramethylpiperidinyloxy inclusion; trichloroacetic acid inclusion cyclodextrin **starch**; dichloroacetic acid inclusion cyclodextrin **starch**; chloroacetic acid inclusion cyclodextrin **starch**; acetic acid inclusion cyclodextrin **starch**; ESR spectroscopy cyclodextrin **starch** gel
 IT 92450-61-8
 RL: USES (Uses)
 (gel, inclusion in, of **chlorinated** acetic acids and hydroxytetramethylpiperidinyloxy, ESR spectroscopy in relation to)
 IT 2226-96-2
 RL: USES (Uses)
 (inclusion of **chlorinated** acetic acids and, in cyclodextrin-**starch** gel, ESR spectroscopy in relation to)
 IT 64-19-7, properties 76-03-9, properties 79-11-8, properties 79-43-6, properties
 RL: PRP (Properties)
 (inclusion of hydroxytetramethylpiperidinyloxy and, in cyclodextrin-**starch** gel, ESR spectroscopy in relation to)
 IT 2226-96-2
 RL: USES (Uses)
 (inclusion of **chlorinated** acetic acids and, in cyclodextrin-**starch** gel, ESR spectroscopy in relation to)
 RN 2226-96-2 HCAPLUS
 CN 1-Piperidinyloxy, 4-hydroxy-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



L20 ANSWER 1 OF 35 HCAPLUS COPYRIGHT 2003 ACS
 ACCESSION NUMBER: 2002:921480 HCAPLUS
 DOCUMENT NUMBER: 138:5706
 TITLE: Gas-barrier coating agents and laminated materials therefrom
 INVENTOR(S): Kato, Yumiko; Matsuo, Ryukichi; Kaminaga, Junichi; Yamawaki, Kentaro
 PATENT ASSIGNEE(S): Toppan Printing Co., Ltd., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 7 pp.

DOCUMENT TYPE: CODEN: JKXXAF
 LANGUAGE: Patent
 FAMILY ACC. NUM. COUNT: 1 Japanese
 PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|-----------------|----------|
| JP 2002348522 | A2 | 20021204 | JP 2001-160103 | 20010529 |
| PRIORITY APPLN. INFO.: | | | JP 2001-160103 | 20010529 |
| AB | Title agents contain ultrafine cellulose contg. glucose and glucuronic acid units prepd. by oxidn. of the carbon 6 of glucopyranose ring of cellulose. Oxidizing cellulose in the presence of NaBr, TEMPO, and NaClO gave a paste, which was spread on a PET film to form a film showing O permeability 1.17 cm ³ /m ² -day-atm and adhesion. | | | |
| IC | ICM C09D101-04 ICS B32B009-02; C09D183-00; C09D185-00 | | | |
| CC | 42-10 (Coatings, Inks, and Related Products) | | | |
| ST | oxidized cellulose gas barrier coating adhesion plastic | | | |
| IT | Polysiloxanes, uses RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (blends with oxidized cellulose; glucose- and glucuronic acid unit-contg. fine oxidized cellulose-based gas-barrier coatings with good adhesion to plastics) | | | |
| IT | Coating materials (gas-impermeable; glucose- and glucuronic acid unit-contg. fine oxidized cellulose-based gas-barrier coatings with good adhesion to plastics) | | | |
| IT | Oxidation (glucose- and glucuronic acid unit-contg. fine oxidized cellulose-based gas-barrier coatings with good adhesion to plastics) | | | |
| IT | Halogen acids RL: TEM (Technical or engineered material use); USES (Uses) (glucose- and glucuronic acid unit-contg. fine oxidized cellulose-based gas-barrier coatings with good adhesion to plastics) | | | |
| IT | Alkali metal bromides Alkali metal iodides RL: TEM (Technical or engineered material use); USES (Uses) (in oxidn. of cellulose; glucose- and glucuronic acid unit-contg. fine oxidized cellulose-based gas-barrier coatings with good adhesion to plastics) | | | |
| IT | Packaging materials (laminated films, gas-impermeable; glucose- and glucuronic acid unit-contg. fine oxidized cellulose-based gas-barrier coatings with good adhesion to plastics) | | | |
| IT | 175340-30-4P, 2-(3,4-Epoxy cyclohexyl)ethyltrimethoxysilane-tetraethyl silicate copolymer RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (blends with oxidized cellulose; glucose- and glucuronic acid unit-contg. fine oxidized cellulose-based gas-barrier coatings with good adhesion to plastics) | | | |
| IT | 9004-34-6DP , Cellulose, oxidized RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (glucose- and glucuronic acid unit-contg. fine oxidized cellulose-based gas-barrier coatings with good adhesion to plastics) | | | |
| IT | 2564-83-2 , TEMPO RL: CAT (Catalyst use); USES (Uses) | | | |

(in oxidn. of cellulose; glucose- and glucuronic acid unit-contg. fine **oxidized** cellulose-based gas-barrier coatings with good adhesion to plastics)

IT 7647-15-6, Sodium bromide, uses 7681-52-9, Sodium hypochlorite
 RL: TEM (Technical or engineered material use); USES (Uses)
 (in oxidn. of cellulose; glucose- and glucuronic acid unit-contg. fine **oxidized** cellulose-based gas-barrier coatings with good adhesion to plastics)

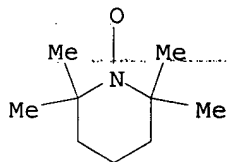
IT 9004-34-6DP, Cellulose, **oxidized**
 RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
 (glucose- and glucuronic acid unit-contg. fine **oxidized** cellulose-based gas-barrier coatings with good adhesion to plastics)

RN 9004-34-6 HCAPLUS
 CN Cellulose (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

IT 2564-83-2, TEMPO
 RL: CAT (Catalyst use); USES (Uses)
 (in oxidn. of cellulose; glucose- and glucuronic acid unit-contg. fine **oxidized** cellulose-based gas-barrier coatings with good adhesion to plastics)

RN 2564-83-2 HCAPLUS
 CN 1-Piperidinyloxy, 2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



L20 ANSWER 2 OF 35 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2002:755247 HCAPLUS

DOCUMENT NUMBER: 137:264665

TITLE: Production of **oxidized** polysaccharide derivative and **oxidized** polyglycosamine derivative

INVENTOR(S): Ookawa, Tadashi; Ueno, Satoshi

PATENT ASSIGNEE(S): Japan

SOURCE: U.S. Pat. Appl. Publ., 12 pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|------------------------|------|----------|-----------------|------------|
| US 2002143172 | A1 | 20021003 | US 2002-58920 | 20020130 |
| JP 2002226502 | A2 | 20020814 | JP 2001-22397 | 20010130 |
| PRIORITY APPLN. INFO.: | | | JP 2001-22397 | A 20010130 |
| | | | JP 2001-306877 | A 20011002 |

AB In the process for producing an oxidized polysaccharide deriv. of the present invention, a polysaccharide (e.g., cellulose or starch) is pretreated to enhance its water soly. and then a primary alc. group of the pretreated polysaccharide is selectively oxidized into a carboxyl group by

hypochlorous acid or its salt in the presence of a nitroxyl compd. With such a process, a sufficient no. of carboxyl groups can be introduced into the polysaccharide without causing the cleavage of mol. chain, thereby producing the oxidized polysaccharide deriv. having an improved water absorption. The same process can be applied to the prodn. of an oxidized polyglycosamine deriv. having a sufficient no. of carboxyl groups introduced into the polyglycosamine without causing the cleavage of mol. chain, thereby producing the oxidized polyglycosamine deriv. having properties comparable to those of naturally occurring mucopolysaccharide. The pretreatment for enhancing the water soly. is effected, for example, by a gelatinization of .alpha.-bonded polysaccharide (e.g., starch), a mercerization of .beta.-bonded polysaccharide (cellulose), a carboxyalkylation or hydroxyalkylation of a hydroxy group of polysaccharide, etc. The pretreated polysaccharide may be subjected to the subsequent oxidn. after drying or immediately after the pretreatment.

IC ICM C08B037-06
ICS C08B035-08; C08B033-08; C08B031-18
NCL 536056000
CC 44-6 (Industrial Carbohydrates)
Secticontains CAS Registry Numbers for easy and accurate substance identification.

This file on cross-reference(s): 43

ST polysaccharide mucopolysaccharide primary alc oxidn
regioselectivity pretreatment
IT Alkylation
(carboxyalkylation, pretreatment; in prodn. of regioselectively
oxidized polysaccharide derivs. and oxidized
polyglycosamine derivs.)
IT Alkylation
(hydroxyalkylation, pretreatment; in prodn. of regioselectively
oxidized polysaccharide derivs. and oxidized
polyglycosamine derivs.)
IT Mucopolysaccharides, preparation
RL: IMF (Industrial manufacture); PRP (Properties); PREP (Preparation)
(oxidized; in prodn. of regioselectively oxidized
polysaccharide derivs. and oxidized polyglycosamine derivs.)
IT Polysaccharides, preparation
RL: IMF (Industrial manufacture); PRP (Properties); PREP (Preparation)
(oxidized; prodn. of regioselectively oxidized
polysaccharide derivs. and oxidized polyglycosamine derivs.)
IT Deacetylation
Gelation
Mercerization
Oxidation
(pretreatment; in prodn. of regioselectively oxidized
polysaccharide derivs. and oxidized polyglycosamine derivs.)
IT 7681-52-9, Sodium hypochlorite
RL: RGT (Reagent); RACT (Reactant or reagent)
(oxidn. agent; for prodn. of regioselectively
oxidized polysaccharide derivs. and oxidized
polyglycosamine derivs.)
IT 2564-83-2, 2,2,6,6-Tetramethylpiperidine-1-Oxyl
RL: CAT (Catalyst use); USES (Uses)
(oxidn. catalyst; for prodn. of regioselectively
oxidized polysaccharide derivs. and oxidized
polyglycosamine derivs.)
IT 1398-61-4DP, Chitin, oxidized 9000-69-5DP, Pectin,
oxidized 9004-34-6DP, Cellulose, oxidized

9004-61-9DP, Hyaluronic acid, **oxidized** 9005-25-8DP,
 Starch, **oxidized** 9005-82-7DP, Amylose, **oxidized**
 9007-27-6DP, Chondroitin, **oxidized** 9007-28-7DP, Chondroitin
 sulfate, **oxidized** 9012-27-5DP, Protopectin, **oxidized**
 9012-76-4DP, Chitosan, **oxidized** 9037-22-3DP, Amylopectin,
oxidized 9046-40-6DP, Pectic acid, **oxidized**
 9067-32-7DP, Sodium hyaluronate, **oxidized** 35110-26-0DP,
 Polyglucosamine, **oxidized**

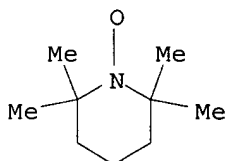
RL: IMF (Industrial manufacture); PRP (Properties); PREP (Preparation)
 (prodn. of regioselectively **oxidized** polysaccharide derivs.
 and **oxidized** polyglycosamine derivs.)

IT 2564-83-2, 2,2,6,6-Tetramethylpiperidine-1-Oxyl

RL: CAT (Catalyst use); USES (Uses)
 (oxidn. catalyst; for prodn. of regioselectively
oxidized polysaccharide derivs. and **oxidized**
 polyglycosamine derivs.)

RN 2564-83-2 HCAPLUS

CN 1-Piperidinyloxy, 2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



IT 9004-34-6DP, Cellulose, **oxidized** 9005-25-8DP,
 Starch, **oxidized**

RL: IMF (Industrial manufacture); PRP (Properties); PREP (Preparation)
 (prodn. of regioselectively **oxidized** polysaccharide derivs.
 and **oxidized** polyglycosamine derivs.)

RN 9004-34-6 HCAPLUS

CN Cellulose (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 9005-25-8 HCAPLUS

CN Starch (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

L20 ANSWER 3 OF 35 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2002:575029 HCAPLUS

DOCUMENT NUMBER: 137:124781

TITLE: Recovery of nitroxyl radicals from **oxidation**
 reactions

INVENTOR(S): Thornton, Jeff; Besemer, Arie; Schraven, Bas

PATENT ASSIGNEE(S): SCA Hygiene Products AB, Swed.

SOURCE: PCT Int. Appl., 22 pp:

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|--------------------------------------------------------------------|------|----------|-----------------|----------|
| WO 2002059064 | A1 | 20020801 | WO 2001-SE2632 | 20011129 |
| W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, | | | | |

CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,
 GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,
 LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH,
 PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA,
 UG, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
 RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH,
 CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR,
 BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

SE 2001000210 A 20020727 SE 2001-210 20010126

US 2002151431 A1 20021017 US 2002-53646 20020124

PRIORITY APPLN. INFO.:

SE 2001-210 A 20010126

US 2001-264018P P 20010126

WO 2001-SE2632 W 20011129

OTHER SOURCE(S): CASREACT 137:124781

AB Stable nitroxyl radicals, such as TEMPO and its derivs., used as catalysts in oxidn. reactions are recovered from oxidn. reactions by hydrophobic interactions with polymers, such as XAD resins, .beta.-cyclodextrin or silica gel. Thus, potato starch in water was treated with 4-acetamido-TEMPO and NaOCl at pH 8.5-9.5. The reaction mixt. was run through a column of silica gel, eluted with water. The 6-carboxy starch was eluted first, followed by the 4-acetamido-TEMPO which could be recycled without loss of activity.

IC ICM C07B063-00

ICS C07D211-94; C07M003-00

CC 21-2 (General Organic Chemistry)

ST TEMPO oxidizing agent recovery XAD resin silica

IT Oxidation

(recovery of nitroxyl radicals from oxidn. reactions)

IT Nitroxides

RL: PUR (Purification or recovery); RGT (Reagent); PREP (Preparation);

RACT (Reactant or reagent)

(recovery of nitroxyl radicals from oxidn. reactions)

IT 37279-73-5, Amberlite XAD

RL: NUU (Other use, unclassified); USES (Uses)

(6, 30; recovery of nitroxyl radicals from oxidn. reactions)

IT 9086-02-6P

RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP (Preparation)

(recovery of nitroxyl radicals from oxidn. reactions)

IT 64-17-5, Ethanol, uses 67-64-1, Acetone, uses 71-41-0, 1-Pentanol, uses 109-99-9, THF, uses 111-87-5, 1-Octanol, uses 7585-39-9, .beta.-Cyclodextrin 9060-05-3, Amberlite XAD 2 11104-40-8, Amberlite XAD 8 37380-42-0, Amberlite XAD 4 54596-43-9, Amberlite XAD 11 97396-56-0, Amberlite XAD 1180 104219-63-8, Amberlite XAD 16

RL: NUU (Other use, unclassified); USES (Uses)

(recovery of nitroxyl radicals from oxidn. reactions)

IT 2226-96-2P, 4-Hydroxy TEMPO 2564-83-2P, TEMPO

6599-87-7P, 1-Piperidinyloxy, 4-acetyloxy-2,2,6,6-tetramethyl-14691-89-5P, 4-Acetamido TEMPO

RL: PUR (Purification or recovery); RGT (Reagent); PREP (Preparation); RACT (Reactant or reagent)

(recovery of nitroxyl radicals from oxidn. reactions)

IT 9005-25-8, Starch, reactions 9005-25-8D, Starch,

Oxidized

RL: RCT (Reactant); RACT (Reactant or reagent)

(recovery of nitroxyl radicals from oxidn. reactions)

IT 2226-96-2P, 4-Hydroxy TEMPO 2564-83-2P, TEMPO

6599-87-7P, 1-Piperidinyloxy, 4-acetyloxy-2,2,6,6-tetramethyl-14691-89-5P, 4-Acetamido TEMPO

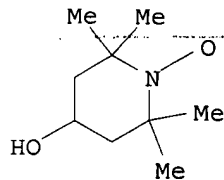
RL: PUR (Purification or recovery); RGT (Reagent); PREP (Preparation);

RACT (Reactant or reagent)

(recovery of nitroxyl radicals from oxidn. reactions)

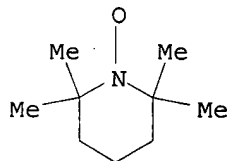
RN 2226-96-2 HCAPLUS

CN 1-Piperidinyloxy, 4-hydroxy-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



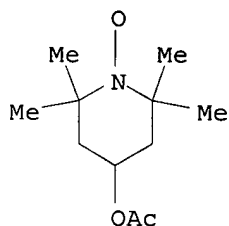
RN 2564-83-2 HCAPLUS

CN 1-Piperidinyloxy, 2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



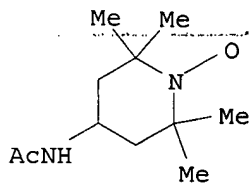
RN 6599-87-7 HCAPLUS

CN 1-Piperidinyloxy, 4-(acetyloxy)-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



RN 14691-89-5 HCAPLUS

CN 1-Piperidinyloxy, 4-(acetylamino)-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



IT 9005-25-8D, Starch, Oxidized

RL: RCT (Reactant); RACT (Reactant or reagent)

(recovery of nitroxyl radicals from oxidn. reactions)

RN 9005-25-8 HCAPLUS

CN Starch (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

REFERENCE COUNT: 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L20 ANSWER 4 OF 35 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2002:462498 HCAPLUS

DOCUMENT NUMBER: 137:21652

TITLE: Production of high molecular weight oxidized
celluloseINVENTOR(S): Besemer, Arie Cornelis; Van Brussel-Verraest, Dorine
Lisa

PATENT ASSIGNEE(S): SCA Hygiene Products Zeist B.V., Neth.

SOURCE: Eur. Pat. Appl., 6 pp.

CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

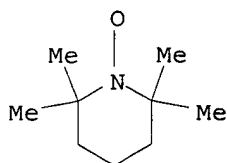
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|----------|-----------------|----------|
| EP 1215217 | A1 | 20020619 | EP 2000-204465 | 20001212 |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR | | | | |
| WO 2002048196 | A1 | 20020620 | WO 2001-NL902 | 20011212 |
| W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG | | | | |
| AU 2002019717 | A5 | 20020624 | AU 2002-19717 | 20011212 |
| PRIORITY APPLN. INFO.: EP 2000-204465 A 20001212 WO 2001-NL902 W 20011212 | | | | |

AB The invention pertains to a process for producing oxidized cellulose having a high mol. wt., by pre-treating cellulose in a non-alk. solvent for cellulose so as to lower its crystallinity, and then oxidizing it using an oxidizing system predominantly oxidizing the 6-hydroxymethyl groups or the 2,3-dihydroxyethylene groups to carbaldehyde and/or carboxyl groups. The oxidizing agent is preferably a nitroxyl compd. (TEMPO) or periodate, and the product is useful as a water-absorbent. Thus, a phosphoric acid-regenerated cellulose (2 g) was suspended in water, TEMPO (40 mg) and NaBr (1 g) were added. Sodium hypochlorite (2 M) was added in 2 mL portions to a total of 12 mL. The pH was kept at 10.5 by addn. of 0.5 M NaOH (total addn. 20.3 mL). The temp. was kept at 4.degree. during the reaction. The total reaction time was 5.5 h. The oxidized product was completely water-sol. Na borohydride (100 mg) was added to reduce aldehyde groups. The product was then isolated by pptn., washed and dried under vacuum at room temp. (yield 2.2 g). The oxidn. degree of the product (based on sodium hydroxide consumption) was 85%. The product consisted of one monodisperse fraction with an av. mol. wt. of 410,000. The oxidized cellulose was dissolved in water (10% soln.), the pH was adjusted to 4.5 and butanediol diglycidyl ether was added (10 mol%). The crosslinking was carried out at 50.degree. for 20 h. The obtained gel was dried at 100.degree. in a fluidized bed dryer, reswollen in excess water

and dried again. The particles were ground to 100-800 .mu.m particles. The absorption under load in synthetic urine was 11 g/g. Crosslinking with divinyl sulfone resulted in even better performance than with butanediol diglycidyl ether.

IC ICM C08B015-04
 CC 43-3 (Cellulose, Lignin, Paper, and Other Wood Products)
 ST cellulose **oxidn** crosslinking product water absorbent
 IT Absorbents
 (for liq.; prodn. of high mol. wt. **oxidized** cellulose and liq. absorbents made from them)
 IT Amines, uses
 RL: NUU (Other use, unclassified); USES (Uses)
 (non-alk. solvents contg.; prodn. of high mol. wt. **oxidized** cellulose and liq. absorbents made from them)
 IT Solvents
 (non-alk.; prodn. of high mol. wt. **oxidized** cellulose and liq. absorbents made from them)
 IT Amine **oxides**
 RL: NUU (Other use, unclassified); USES (Uses)
 (solvent; prodn. of high mol. wt. **oxidized** cellulose and liq. absorbents made from them)
 IT 7664-41-7, Ammonia, uses
 RL: NUU (Other use, unclassified); USES (Uses)
 (non-alk. solvents contg.; prodn. of high mol. wt. **oxidized** cellulose and liq. absorbents made from them)
 IT 7681-52-9, Sodium hypochlorite
 RL: MOA (Modifier or additive use); USES (Uses)
 (**oxidant**; prodn. of high mol. wt. **oxidized** cellulose and liq. absorbents made from them)
 IT 2564-83-2, 2,2,6,6-Tetramethylpiperidine-1-oxyl
 RL: CAT (Catalyst use); USES (Uses)
 (**oxidn. catalyst**; prodn. of high mol. wt. **oxidized** cellulose and liq. absorbents made from them)
 IT 77-77-ODP, Divinyl sulfone, crosslinked product with **oxidized** cellulose 2425-79-8DP, crosslinked product with **oxidized** cellulose 9004-34-6DP, Cellulose, **oxidized** and crosslinked products
 RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
 (prodn. of high mol. wt. **oxidized** cellulose and liq. absorbents made from them)
 IT 127-19-5, Dimethylacetamide 7529-22-8, N-Methylmorpholine-N-**oxide** 7664-38-2, Phosphoric acid, uses
 RL: NUU (Other use, unclassified); USES (Uses)
 (solvent; prodn. of high mol. wt. **oxidized** cellulose and liq. absorbents made from them)
 IT 2564-83-2, 2,2,6,6-Tetramethylpiperidine-1-oxyl
 RL: CAT (Catalyst use); USES (Uses)
 (**oxidn. catalyst**; prodn. of high mol. wt. **oxidized** cellulose and liq. absorbents made from them)
 RN 2564-83-2 HCAPLUS
 CN 1-Piperidinyloxy, 2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



IT 9004-34-6DP, Cellulose, **oxidized** and crosslinked products
 RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
 (prodn. of high mol. wt. **oxidized** cellulose and liq. absorbents made from them)
 RN 9004-34-6 HCAPLUS
 CN Cellulose (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L20 ANSWER 5 OF 35 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2002:450357 HCAPLUS

DOCUMENT NUMBER: 137:21651

TITLE: Production of high molecular weight **oxidized** cellulose

INVENTOR(S): Besemer, Arie Cornellis; Van Brussel-Verraest, Dorine
 Lisa

PATENT ASSIGNEE(S): Neth.

SOURCE: U.S. Pat. Appl. Publ., 4 pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

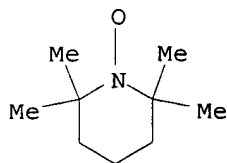
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|------------------------|------|----------|-----------------|------------|
| US 2002072598 | A1 | 20020613 | US 2001-11976 | 20011211 |
| PRIORITY APPLN. INFO.: | | | US 2000-254587P | P 20001212 |

AB The invention pertains to a process for producing oxidized cellulose having a high mol. wt., by pre-treating cellulose in a non-alk. solvent for cellulose so as to lower its crystallinity, and then oxidizing it using an oxidizing system predominantly oxidizing the 6-hydroxymethyl groups or the 2,3-dihydroxyethylene groups to carbaldehyde and/or carboxyl groups. The oxidizing agent is preferably a nitroxyl compd. (TEMPO) or periodate, and the product is useful as a water absorbent. Thus, a phosphoric acid-regenerated cellulose (2 g) was suspended in water to which TEMPO (40 mg) and NaBr (1 g) were added. Sodium hypochlorite (2 M) was added in 2 mL portions to a total of 12 mL. The pH was kept at 10.5 by addn. of 0.5 M NaOH (total addn. 20.3 mL). The temp. was kept at 4.degree. during the reaction. The total reaction time was 5.5 h. The oxidized product was completely water-sol. Na borohydride (100 mg) was added to reduce aldehyde groups. The product was then isolated by pptn. and dried. The oxidn. degree of the product (based on NaOH consumption) was 85%. The product consisted of one monodisperse fraction with an av. mol. wt. of 410,000. The oxidized cellulose was dissolved in water (10% soln.), the pH was adjusted to 4.5 and butanediol diglycidyl ether was added (10 mol%). The crosslinking was carried out at 50.degree. for 20 h.

The obtained gel was dried at 100.degree. in a fluidized bed dryer, reswollen in excess water and dried again. The particles were ground to 100-800 .mu.m particles. The absorption under load in synthetic urine was 11 g/g. Crosslinking with divinyl sulfone resulted in even better performance than with butanediol diglycidyl ether.

IC ICM C08B011-00
 NCL 536056000
 CC 43-3 (Cellulose, Lignin, Paper, and Other Wood Products)
 ST cellulose **oxidn** crosslinking product water absorbent
 IT Absorbents
 (for liq.; prodn. of high mol. wt. **oxidized** cellulose and
 liq. absorbents made from them)
 IT Amines, uses
 RL: NUU (Other use, unclassified); USES (Uses)
 (non-alk. solvents contg.; prodn. of high mol. wt. **oxidized**
 cellulose and liq. absorbents made from them)
 IT Solvents
 (non-alk.; prodn. of high mol. wt. **oxidized** cellulose and
 liq. absorbents made from them)
 IT Amine **oxides**
 RL: NUU (Other use, unclassified); USES (Uses)
 (solvent; prodn. of high mol. wt. **oxidized** cellulose and liq.
 absorbents made from them)
 IT 7664-41-7, Ammonia, uses
 RL: NUU (Other use, unclassified); USES (Uses)
 (non-alk. solvents contg.; prodn. of high mol. wt. **oxidized**
 cellulose and liq. absorbents made from them)
 IT 7681-52-9, Sodium hypochlorite
 RL: MOA (Modifier or additive use); USES (Uses)
 (**oxidant**; prodn. of high mol. wt. **oxidized**
 cellulose and liq. absorbents made from them)
 IT 2564-83-2, 2,2,6,6-Tetramethylpiperidine-1-oxyl
 RL: CAT (Catalyst use); USES (Uses)
 (**oxidn.** catalyst; prodn. of high mol. wt. **oxidized**
 cellulose and liq. absorbents made from them)
 IT 77-77-ODP, Divinyl sulfone, crosslinked product with **oxidized**
 cellulose 2425-79-8DP, crosslinked product with **oxidized**
 cellulose 9004-34-6DP, Cellulose, **oxidized** and
 crosslinked products
 RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or
 engineered material use); PREP (Preparation); USES (Uses)
 (prodn. of high mol. wt. **oxidized** cellulose and liq.
 absorbents made from them)
 IT 127-19-5, Dimethylacetamide 7529-22-8, N-Methylmorpholine-N-
 oxide 7664-38-2, Phosphoric acid, uses
 RL: NUU (Other use, unclassified); USES (Uses)
 (solvent; prodn. of high mol. wt. **oxidized** cellulose and liq.
 absorbents made from them)
 IT 2564-83-2, 2,2,6,6-Tetramethylpiperidine-1-oxyl
 RL: CAT (Catalyst use); USES (Uses)
 (**oxidn.** catalyst; prodn. of high mol. wt. **oxidized**
 cellulose and liq. absorbents made from them)
 RN 2564-83-2 HCAPLUS
 CN 1-Piperidinyloxy, 2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



IT 9004-34-6DP, Cellulose, **oxidized** and crosslinked products
 RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
 (prodn. of high mol. wt. **oxidized** cellulose and liq. absorbents made from them)
 RN 9004-34-6 HCAPLUS
 CN Cellulose (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

L20 ANSWER 6 OF 35 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2002:327792 HCAPLUS

DOCUMENT NUMBER: 136:342435

TITLE: Method of making carboxylated cellulose fibers and products of the method

INVENTOR(S): Jewell, Richard A.; Komen, Joseph Lincoln; Li, Yong; Su, Bing

PATENT ASSIGNEE(S): Weyerhaeuser Company, USA

SOURCE: U.S.; 18 pp.; Cont. in part of U.S. Ser. No. 272,137.

CODEN: USXXAM

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|----------|-----------------|----------|
| US 6379494 | B1 | 20020430 | US 1999-418909 | 19991015 |
| WO 2001029309 | A1 | 20010426 | WO 2000-US27837 | 20001006 |
| W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM | | | | |
| RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG | | | | |
| EP 1238142 | A1 | 20020911 | EP 2000-970682 | 20001006 |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL | | | | |

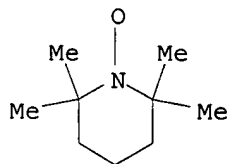
PRIORITY APPLN. INFO.:
 US 1999-272137 A2 19990319
 US 1999-418909 A 19991015
 WO 2000-US27837 W 20001006

AB The invention is directed to a method of making carboxylated cellulose fibers whose fiber strength and d.p. is not significantly sacrificed. The method involves the use of TEMPO (2,2,6,6-tetramethylpiperidinyloxy free radical) as a primary oxidant and a hypohalite salt as a secondary oxidant in an aq. environment. Preferably the oxidized cellulose is then stabilized against D.P. loss in alk. environments and color reversion with

a reducing agent such as sodium borohydride. Alternatively it may be treated with an oxidant such as sodium chlorite. The method results in a high percentage of carboxyl groups located at the fiber surface. The product is esp. useful as a papermaking fiber where it contributes strength and has a higher attraction for cationic additives. The product is also useful as an additive to recycled fiber to increase strength. The method can be used to improve properties of either virgin or recycled fiber. It does not require high .alpha.-cellulose fiber but is suitable for regular market pulps.

IC ICM D21H011-20
ICS C21C004-00; D06M013-322
NCL 162009000
CC 43-3 (Cellulose, Lignin, Paper, and Other Wood Products)
ST carboxylated cellulose fiber manuf hypohalite tetramethylpiperidineoxyl
oxidn
IT Cellulose pulp
Oxidation
Paper
(method of making carboxylated cellulose fibers and products of method)
IT Hypohalites
RL: RGT (Reagent); RACT (Reactant or reagent)
(oxidant; method of making carboxylated cellulose fibers and products of method)
IT 9004-34-6DP, Cellulose, oxidized
RL: IMF (Industrial manufacture); PREP (Preparation)
(method of making carboxylated cellulose fibers and products of method)
IT 7681-52-9, Sodium hypochlorite 7758-19-2, Sodium chlorite 335133-08-9, Stabrex ST 70
RL: ~~RGT (Reagent); RACT (Reactant or reagent)~~
(oxidant; method of making carboxylated cellulose fibers and products of method)
IT 2564-83-2, 2,2,6,6-Tetramethylpiperidine-1-oxyl
RL: CAT (Catalyst use); USES (Uses)
(oxidn. catalyst; method of making carboxylated cellulose fibers and products of method)
IT 9004-34-6DP, Cellulose, oxidized
RL: IMF (Industrial manufacture); PREP (Preparation)
(method of making carboxylated cellulose fibers and products of method)
RN 9004-34-6 HCAPLUS
CN Cellulose (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
IT 2564-83-2, 2,2,6,6-Tetramethylpiperidine-1-oxyl
RL: CAT (Catalyst use); USES (Uses)
(oxidn. catalyst; method of making carboxylated cellulose fibers and products of method)
RN 2564-83-2 HCAPLUS
CN 1-Piperidinyloxy, 2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 33 THERE ARE 33 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L20 ANSWER 7 OF 35 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2002:314951 HCAPLUS

DOCUMENT NUMBER: 136:325784

TITLE: Method for the **oxidation** of aldehydes,
hemiacetals and primary alcohols

INVENTOR(S): Merbouh, Naby; Bobitt, James M.; Bruckner, Christian

PATENT ASSIGNEE(S): University of Connecticut, USA

SOURCE: PCT Int. Appl., 30 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|----------|-----------------|----------|
| WO 2002032913 | A1 | 20020425 | WO 2001-US32491 | 20011017 |
| W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM | | | | |
| RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG | | | | |

US 6498269 B1 20021224 US 2000-690614 20001017

AU 2002013363 A5 20020429 AU 2002-13363 20011017

PRIORITY APPLN. INFO.:

US 2000-690614 A 20001017

WO 2001-US32491 W 20011017

OTHER SOURCE(S): CASREACT 136:325784; MARPAT 136:325784

AB A method for the oxidn. of substrates comprising treating an aq., basic soln. of a substrate having an oxidizable functionality using an elemental halogen as terminal oxidant in the presence of an oxo-ammonium catalyst/halide co-catalyst system. Use of elemental halogen, preferably chlorine gas or elemental bromine, unexpectedly allows oxidn. without significant degrdn. of the substrate. The substrate is preferably a monosaccharide, oligosaccharide, or polysaccharide, and the oxidizable functionality is preferably an aldehyde, hemiacetal, or a primary alc. An effective source of the oxo-ammonium catalyst is 2,2,6,6-tetramethylpiperidiny-1-oxy (TEMPO) and a particularly economical and effective catalyst is 4-acetylamino-2,2,6,6-tetramethylpiperidiny-1-oxy. Thus, oxidn. of glucose with KBr and gaseous chlorine in aq. KOH soln. in presence of 4-acetylamino-2,2,6,6-tetramethylpiperidiny-1-oxy as catalyst gave monopotassium glutamate in 90% yield.

IC ICM C07H007-033

CC 33-9 (Carbohydrates)

ST acetylamino-2,2,6,6-tetramethylpiperidinyloxy catalyst **oxidn** aldehyde sugar prepn uronate; oxoammonium catalyst **oxidn** aldehyde sugar prepn uronate; catalyst **oxidn** aldehyde sugar monosaccharide oligosaccharide polysaccharide prepn uronate

IT **Oxidation** catalysts

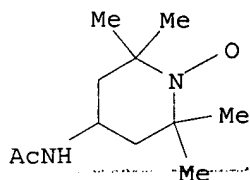
(**oxidn.** of aldehydes hemiacetals and primary alcs. in presence of 4-acetylamino-2,2,6,6-tetramethylpiperidiny-1-oxy as catalyst)

IT Uronic acids

RL: IMF (Industrial manufacture); PREP (Preparation)

(**oxidn.** of aldehydes hemiacetals and primary alcs. in presence of 4-acetylamino-2,2,6,6-tetramethylpiperidiny-1-oxy as

- catalyst)
- IT Monosaccharides
Oligosaccharides, preparation
Polysaccharides, preparation
RL: IMF (Industrial manufacture); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(oxidn. of aldehydes hemiacetals and primary alcs. in presence of 4-acetylamino-2,2,6,6-tetramethylpiperidiny-1-oxy as catalyst)
- IT 14691-89-5, 4-Acetylamino-2,2,6,6-tetramethylpiperidiny-1-oxy.
219543-09-6
RL: CAT (Catalyst use); USES (Uses)
(oxidn. of aldehydes hemiacetals and primary alcs. in presence of 4-acetylamino-2,2,6,6-tetramethylpiperidiny-1-oxy as catalyst)
- IT 526-99-8P, Mucic acid 576-42-1P 9005-25-8DP, Starch, oxidized, sodium salts 54173-03-4P, Disodium glucarate 197388-71-9P
RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP (Preparation)
(oxidn. of aldehydes hemiacetals and primary alcs. in presence of 4-acetylamino-2,2,6,6-tetramethylpiperidiny-1-oxy as catalyst)
- IT 50-69-1, D-Ribose 50-99-7, D-Glucose, reactions 57-48-7, D-Fructose, reactions 57-50-1, Sucrose, reactions 58-86-6, D-Xylose, reactions 59-23-4, D-Galactose, reactions 63-42-3, Lactose 69-79-4, Maltose 87-79-6, L-Sorbose 87-81-0, D-Tagatose 488-84-6, D-Ribulose 512-69-6, Raffinose 527-50-4, L-Xylulose 528-50-7, Cellobiose 551-68-8, D-Psicose 551-84-8, D-Xylulose 554-91-6, Gentiobiose 597-12-6, Melezitose 609-06-3, L-Xylose 921-60-8, L-Glucose 1114-34-7, D-Lyxose 1398-61-4, Chitin 1949-78-6, L-Lyxose 1949-88-8, L-Altrose 1990-29-0, D-Altrose 2042-27-5, L-erythro-2-Pentulose 2595-97-3, D-Allose 2595-98-4, D-Talose 3458-28-4, D-Mannose 3615-56-3, D-Sorbose 4205-23-6, D-Gulose 5328-37-0, L-Arabinose 5934-56-5, L-Idose 5978-95-0, D-Idose 6027-89-0, L-Gulose 7635-11-2, L-Allose 7776-48-9, L-Fructose 9000-01-5, Gum arabic 9000-69-5, Pectins 9002-18-0, Agar 9004-34-6, Cellulose, reactions 9004-54-0, Dextran, reactions 9004-61-9, Hyaluronic acid 9005-25-8, Starch, reactions 9005-32-7, Alginic acid 9005-82-7, Amylose 9014-63-5, Xylan 9034-32-6, Hemicellulose 9036-88-8, Mannan 9037-22-3, Amylopectin 9037-90-5, Fructan 9060-75-7, Arabinan 10016-20-3, .alpha.-Cyclodextrin 10030-80-5, L-Mannose 10323-20-3, D-Arabinose 15572-79-9, L-Galactose 16354-64-6, L-Psicose 17598-82-2, L-Tagatose 23567-25-1, L-Talose 24259-59-4, L-Ribose
RL: RCT (Reactant); RACT (Reactant or reagent)
(oxidn. of aldehydes hemiacetals and primary alcs. in presence of 4-acetylamino-2,2,6,6-tetramethylpiperidiny-1-oxy as catalyst)
- IT 14691-89-5, 4-Acetylamino-2,2,6,6-tetramethylpiperidiny-1-oxy.
RL: CAT (Catalyst use); USES (Uses)
(oxidn. of aldehydes hemiacetals and primary alcs. in presence of 4-acetylamino-2,2,6,6-tetramethylpiperidiny-1-oxy as catalyst)
- RN 14691-89-5 HCAPLUS
- CN 1-Piperidinyloxy, 4-(acetylamino)-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



IT 9005-25-8DP, Starch, oxidized, sodium salts
 RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP
 (Preparation)
 (oxidn. of aldehydes hemiacetals and primary alcs. in
 presence of 4-acetyl-2,2,6,6-tetramethylpiperidinyl-1-oxo as
 catalyst)
 RN 9005-25-8 HCAPLUS
 CN Starch (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS
 RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L20 ANSWER 8 OF 35 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2002:171960 HCAPLUS

DOCUMENT NUMBER: 136:221741

TITLE: Preparation of percarboxylated polysaccharides for
 medicinal uses

INVENTOR(S): Bellini, Davide; Crescenzi, Vittorio; Francescangeli,
 Andrea

PATENT ASSIGNEE(S): Fidia Advanced Biopolymers S.R.L., Italy

SOURCE: PCT Int. Appl., 18 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---------------|------|----------|-----------------|----------|
| WO 2002018448 | A2 | 20020307 | WO 2001-EP10062 | 20010831 |
| WO 2002018448 | A3 | 20020516 | | |

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN,
 CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,
 GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,
 LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PH, PL,
 PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG,
 US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM

~~RW: CH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY,~~
 DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF,
 BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

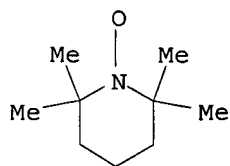
| | | | | |
|---------------|----|----------|---------------|----------|
| AU 2001091815 | A5 | 20020313 | AU 2001-91815 | 20010831 |
|---------------|----|----------|---------------|----------|

PRIORITY APPLN. INFO.: IT 2000-PD208 A 20000831

WO 2001-EP10062 W 20010831

AB The present invention relates to percarboxylated polysaccharide selected
 from the group consisting of gellan, CM-cellulose, pectic acid, pectin and
 hyaluronic acid derivs.; the process for their prepn. and their use in the
 pharmaceutical, biomedical, surgical and health-care fields. Thus, a
 percarboxylated hyaluronic acid sodium salt was prepd. by the treatment of
 sodium hyaluronate with sodium hypochlorite in the presence of Tempo.

IC ICM C08B037-00
 CC 63-6 (Pharmaceuticals)
 IT Adrenoceptor agonists
 Adrenoceptor antagonists
 Anesthetics
 Animal tissue culture
 Anti-inflammatory agents
 Antibiotics
 Anticoagulants
 Antimicrobial agents
 Antitumor agents
 Antiviral agents
 Bone
 Cholinergic agonists
 Contact lenses
 Cosmetics
 Eye
 Fibrinolytics
 Fungicides
 Gums and Mucilages
 Heart
 Hemostatics
 Medical goods
 Oxidation
 Skin
 Surgery
 Thrombolytics
 Tooth
 Vaccines
 Wound healing promoters
 (prepn. of percarboxylated polysaccharides for medicinal uses)
 IT 2564-83-2, TEMPO 7681-52-9, Sodium hypochlorite 9067-32-7,
 Sodium hyaluronate 123584-46-3, Gellan sodium salt
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (prepn. of percarboxylated polysaccharides for medicinal uses)
 IT 1398-61-4, Chitin 9002-18-0, Agar 9002-84-0, PTFE 9004-34-6,
 Cellulose, biological studies 9004-34-6D, Cellulose, derivs.
 9004-61-9, Hyaluronic acid 9005-25-8, Starch, biological studies
 9005-32-7, Alginic acid 9012-36-6, Agarose 9012-76-4, Chitosan
 11138-66-2, Xanthan 26009-03-0, Polyglycolic acid 26023-30-3,
 Poly[oxy(1-methyl-2-oxo-1,2-ethanediyl)] 26100-51-6, Polylactic acid
 26124-68-5, Polyglycolic acid 142804-65-7, Gellan
 RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
 (prepn. of percarboxylated polysaccharides for medicinal uses)
 IT 2564-83-2, TEMPO
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (prepn. of percarboxylated polysaccharides for medicinal uses)
 RN 2564-83-2 HCAPLUS
 CN 1-Piperidinyl-oxy, 2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



IT 9004-34-6D, Cellulose, derivs.

RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(prepn. of percarboxylated polysaccharides for medicinal uses)

RN 9004-34-6 HCAPLUS

CN Cellulose (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

L20 ANSWER 9 OF 35 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2001:360248 HCAPLUS

DOCUMENT NUMBER: 134:354735

TITLE: Metal-crosslinkable **oxidized**
cellulose-containing fibrous materials, their
manufacture and products

INVENTOR(S): Jaschinski, Thomas

PATENT ASSIGNEE(S): SCA Hygiene Products G.m.b.H., Germany

SOURCE: PCT Int. Appl., 75 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|----------|------------------|----------|
| WO 2001034903 | A1 | 20010517 | WO 2000-EP11047 | 20001108 |
| W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG | | | | |
| DE 19953591 | A1 | 20010517 | DE 1999-19953591 | 19991108 |
| US 6409881 | B1 | 20020625 | US 2000-706764 | 20001107 |

PRIORITY APPLN. INFO.: DE 1999-19953591 A 19991108

AB Crosslinked cellulose-contg. fibrous material, where hydroxy groups are oxidized at the C(6) of glucose units of the cellulose into aldehyde and/or carboxy groups crosslinked with a metal-contg. crosslinking agent selected from transition metals of Group IVb (preferably Zr), Vb VIb, VIIb and VIII, Al and Zn, used in a paper or nonwoven (product), e.g. tissue (product) of high wet and dry strength. Thus, bleached hardwood sulfite pulp was treated for 60 min under acidic conditions with 4-hydroxy-TEMPO (1.00 g/50 g dry fibrous material) using 5% of 13% NaOCl as a primary oxidizing agent, and used to prep. test sheets (basis wt. 80 g/m²) having wt. 2.56 g, breaking strength 23.94 (dry) and 4.687 N/15 mm (wet), tear length 1980.1 (dry) and 387.7 m (wet), and rel. wet strength 19.6%. Upon crosslinking treatment with aq. 2% ammonium zirconium carbonate soln., the test sheet had breaking strength 31.64 (dry) and 8.502 N/15 mm (wet), tear length 2582.1 (dry) and 693.1 m (wet), and rel. wet strength 26.9%.

IC ICM D21C009-00

ICS C08B015-02; D21H011-20

CC 43-7 (Cellulose, Lignin, Paper, and Other Wood Products)

ST sodium hypochlorite TEMPO **oxidn** cellulose; ammonium zirconium carbonate crosslinking **oxidized** cellulose

IT Household furnishings

(bedding; **oxidn**. and crosslinking of cellulose-contg. fibrous materials for paper products having high wet and dry strength)

IT Group IVB elements

Group VB elements
 Group VIB elements
 Group VIIB elements
 Group VIII elements
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (crosslinking agent; **oxidn.** and crosslinking of
 cellulose-contg. fibrous materials for paper products having high wet
 and dry strength)

IT Cellulose pulp
 (kraft; **oxidn.** and crosslinking of cellulose-contg. fibrous
 materials for paper products having high wet and dry strength)

IT Clothing
 Paper
 (**oxidn.** and crosslinking of cellulose-contg. fibrous
 materials for paper products having high wet and dry strength)

IT Paper
 (tissue; **oxidn.** and crosslinking of cellulose-contg. fibrous
 materials for paper products having high wet and dry strength)

IT Paper
 (towels; **oxidn.** and crosslinking of cellulose-contg. fibrous
 materials for paper products having high wet and dry strength)

IT Crosslinking agents
 (transition metal compds.; **oxidn.** and crosslinking of
 cellulose-contg. fibrous materials for paper products having high wet
 and dry strength)

IT Medical goods
 (wipes; **oxidn.** and crosslinking of cellulose-contg. fibrous
 materials for paper products having high wet and dry strength)

IT 22829-17-0, Ammonium-zirconium carbonate
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (crosslinking agent; **oxidn.** and crosslinking of
 cellulose-contg. fibrous materials for paper products having high wet
 and dry strength)

IT 9004-34-6DP, Cellulose, **oxidized**, reactions
 RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT
 (Reactant or reagent)
 (**oxidn.** and crosslinking of cellulose-contg. fibrous
 materials for paper products having high wet and dry strength)

IT 2226-96-2, 4-Hydroxy-Tempo 2564-83-2, Tempo 7681-52-9,
 Sodium hypochlorite 10028-15-6, Ozone, reactions
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (**oxidn.** and crosslinking of cellulose-contg. fibrous
 materials for paper products having high wet and dry strength)

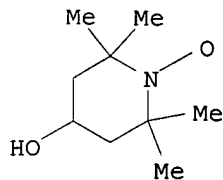
IT 9004-34-6DP, Cellulose, **oxidized**, reactions
 RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT
 (Reactant or reagent)
 (**oxidn.** and crosslinking of cellulose-contg. fibrous
 materials for paper products having high wet and dry strength)

RN 9004-34-6 HCAPLUS
 CN Cellulose (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

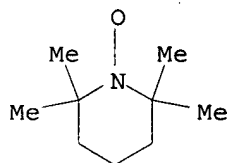
IT 2226-96-2, 4-Hydroxy-Tempo 2564-83-2, Tempo
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (**oxidn.** and crosslinking of cellulose-contg. fibrous
 materials for paper products having high wet and dry strength)

RN 2226-96-2 HCAPLUS
 CN 1-Piperidinyloxy, 4-hydroxy-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



RN 2564-83-2 HCAPLUS

CN 1-Piperidinyloxy, 2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L20 ANSWER 10 OF 35 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2001:360048 HCAPLUS

DOCUMENT NUMBER: 134:368508

TITLE: Selective **oxidation** of primary alcohol functions into carbaldehyde groups in monosaccharides and polysaccharides under acidic conditions

INVENTOR(S): Gunnars, Susanna

PATENT ASSIGNEE(S): SCA Hygiene Products Zeist B.V., Neth.

SOURCE: PCT Int. Appl., 14 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|----------|-----------------|----------|
| WO 2001034657 | A1 | 20010517 | WO 2000-NL812 | 20001108 |
| W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM | | | | |
| RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG | | | | |
| EP 1237933 | A1 | 20020911 | EP 2000-980111 | 20001108 |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR | | | | |
| PRIORITY APPLN. INFO.: EP 1999-203726 A 19991108 | | | | |
| WO 2000-NL812 W 20001108 | | | | |

AB The oxidn. was carried out in the presence of a di-tertiary-alkyl nitroxyl such as 4-hydroxy-2,2,6,6-tetramethylpiperidin-1-oxyl and optional sodium hypochlorite in an aq. reaction medium at a pH < 7. The process exhibits a preference of primary over secondary alc. functions and is particularly

advantageous for oxidizing primary hydroxy groups in carbohydrates such as starch into carbaldehyde groups rather than carboxylic groups. The selectivities of primary over secondary alc. functions and of alc. to aldehyde over aldehyde to carboxylic acid can be effected by selecting specific di-tertiary-alkyl nitroxyl analogs and by carrying out the oxidn. at different conditions (temp., pH and rate of addn. of oxidizing agent). The oxidized products can be used as chelating agents for metals and the like and as absorbent materials.

- IC ICM C08B031-18
ICS C08B015-04; C07H007-033
- CC 44-6 (Industrial Carbohydrates)
Section cross-reference(s): 33
- ST selective oxidn primary alc carbaldehyde polysaccharide starch;
nitroxyl hypochlorite oxidizing agent
- IT Carbohydrates, reactions
Polysaccharides, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(Selective oxidn. of primary alc. functions into carbaldehyde groups in monosaccharides and polysaccharides)
- IT Absorbents
Oxidation
Oxidizing agents
(Selective oxidn. of primary alc. functions into carbaldehyde groups with di-tertiary-alkyl nitroxyl and hypochlorite)
- IT Hypochlorites
RL: RCT (Reactant); RACT (Reactant or reagent)
(oxidizing agent; Selective oxidn. of primary alc. functions into carbaldehyde groups with di-tertiary-alkyl nitroxyl and hypochlorite)
- IT 6556-12-3P, Glucuronic acid 9004-34-6DP, Cellulose, oxidized, preparation 9005-25-8DP, Starch, oxidized, preparation 23598-27-8P
RL: IMF (Industrial manufacture); PREP (Preparation)
(Selective oxidn. of primary alc. functions into carbaldehyde groups in monosaccharides and polysaccharides)
- IT 97-30-3, Methyl-.alpha.-D-glucopyranoside
RL: RCT (Reactant); RACT (Reactant or reagent)
(Selective oxidn. of primary alc. functions into carbaldehyde groups in monosaccharides and polysaccharides)
- IT 7681-52-9, Sodium hypochlorite
RL: RCT (Reactant); RACT (Reactant or reagent)
(oxidizing agent; Selective oxidn. of primary alc. functions into carbaldehyde groups in monosaccharides and polysaccharides)
- IT 2226-96-2, 4-Hydroxy-2,2,6,6-tetramethylpiperidin-1-oxyl
2564-83-2, 2,2,6,6-Tetramethylpiperidin-1-oxyl 6599-87-7
, 4-Acetoxy-2,2,6,6-tetramethylpiperidin-1-oxyl 14691-89-5,
4-Acetamido-2,2,6,6-tetramethylpiperidin-1-oxyl
RL: RCT (Reactant); RACT (Reactant or reagent)
(oxidizing agent; Selective oxidn. of primary alc. functions into carbaldehyde groups with di-tertiary-alkyl nitroxyl and hypochlorite)
- IT 59419-58-8P
RL: IMF (Industrial manufacture); PREP (Preparation)
(oxidn. and crosslinking of carbaldehyde-contg. polysaccharides)
- IT 9004-34-6DP, Cellulose, oxidized, preparation
9005-25-8DP, Starch, oxidized, preparation
RL: IMF (Industrial manufacture); PREP (Preparation)
(Selective oxidn. of primary alc. functions into carbaldehyde

groups in monosaccharides and polysaccharides)

RN 9004-34-6 HCAPLUS

CN Cellulose (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 9005-25-8 HCAPLUS

CN Starch (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

IT 2226-96-2, 4-Hydroxy-2,2,6,6-tetramethylpiperidin-1-oxyl

2564-83-2, 2,2,6,6-Tetramethylpiperidin-1-oxyl 6599-87-7

, 4-Acetoxy-2,2,6,6-tetramethylpiperidin-1-oxyl 14691-89-5,

4-Acetamido-2,2,6,6-tetramethylpiperidin-1-oxyl

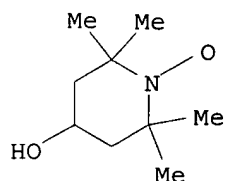
RL: RCT (Reactant); RACT (Reactant or reagent)

(oxidizing agent; Selective oxidn. of primary alc.

functions into carbaldehyde groups with di-tertiary-alkyl nitroxyl and hypochlorite)

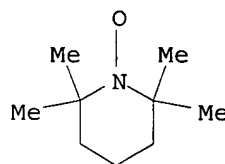
RN 2226-96-2 HCAPLUS

CN 1-Piperidinyloxy, 4-hydroxy-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



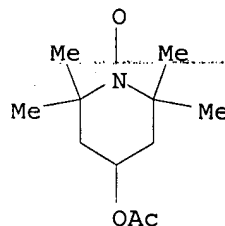
RN 2564-83-2 HCAPLUS

CN 1-Piperidinyloxy, 2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



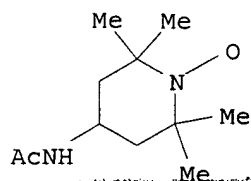
RN 6599-87-7 HCAPLUS

CN 1-Piperidinyloxy, 4-(acetyloxy)-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



RN 14691-89-5 HCAPLUS

CN 1-Piperidinyloxy, 4-(acetamino)-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L20 ANSWER 11 OF 35 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2001:360047 HCAPLUS

DOCUMENT NUMBER: 134:354734

TITLE: **Oxidized polysaccharides and products made thereof**

INVENTOR(S): Jaschinski, Thomas; Gunnars, Susanna; Besemer, Arie Cornelis; Bragd, Petter

PATENT ASSIGNEE(S): SCA Hygiene Products G.m.b.H., Germany

SOURCE: PCT Int. Appl., 51 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|----------|------------------|----------|
| WO 2001034656 | A1 | 20010517 | WO 2000-EP11048 | 20001108 |
| W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM | | | | |
| RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG | | | | |
| DE 19953589 | A1 | 20010523 | DE 1999-19953589 | 19991108 |
| BR 2000015245 | A | 20020723 | BR 2000-15245 | 20001108 |
| EP 1228099 | A1 | 20020807 | EP 2000-972899 | 20001108 |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, MC, IE, SI, LT, LV, FI, RO, MK, CY, AL | | | | |

PRIORITY APPLN. INFO.: DE 1999-19953589 A 19991108

WO 2000-EP11048 W 20001108

AB The present invention relates to a polysaccharide having functional groups, wherein said groups are aldehyde groups formed at positions C2 and/or C3 as well as at position C6 of the anhydroglucose units of the polysaccharide chain. Preferably, the polysaccharide is a cellulosic fibrous material, the primary and secondary hydroxyl groups of which are at least partially oxidized to aldehyde groups by means of TEMPO oxidn. and periodate oxidn. The invention also relates to a paper or nonwoven comprising the above polysaccharide. According to the invention a relative wet strength of greater than 10% can be achieved.

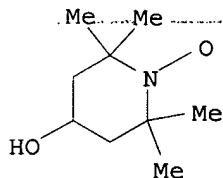
IC ICM C08B015-02

ICS C08B031-18; C08B033-08; C08B035-08

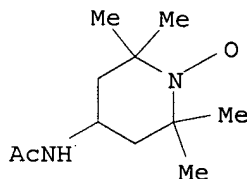
CC 43-7 (Cellulose, Lignin, Paper, and Other Wood Products)

Section cross-reference(s): 40

- ST tetramethylpiperidine oxyl **oxidn** polysaccharide papermaking wet strength agent; aldehyde cellulose wet strength agent papermaking; periodate **oxidn** polysaccharide papermaking wet strength agent
- IT Nonwoven fabrics
Paper
(**oxidized** polysaccharides and products made thereof)
- IT 7681-52-9, Sodium hypochlorite
RL: MOA (Modifier or additive use); USES (Uses)
(**co-oxidant**; **oxidized** polysaccharides and products made thereof)
- IT 2226-96-2, 4-Hydroxy-TEMPO 7790-28-5, Sodium periodate
14691-89-5, 4-Acetamido-TEMPO
RL: MOA (Modifier or additive use); USES (Uses)
(**oxidant**; **oxidized** polysaccharides and products made thereof)
- IT 9004-34-6DP, Cellulose, **oxidized**, uses
RL: IMF (Industrial manufacture); MOA (Modifier or additive use); PREP (Preparation); USES (Uses)
(**oxidized** polysaccharides and products made thereof)
- IT 2226-96-2, 4-Hydroxy-TEMPO 14691-89-5, 4-Acetamido-TEMPO
RL: MOA (Modifier or additive use); USES (Uses)
(**oxidant**; **oxidized** polysaccharides and products made thereof)
- RN 2226-96-2 HCAPLUS
- CN 1-Piperidinyloxy, 4-hydroxy-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



- RN 14691-89-5 HCAPLUS
- CN 1-Piperidinyloxy, 4-(acetamino)-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



- IT 9004-34-6DP, Cellulose, **oxidized**, uses
RL: IMF (Industrial manufacture); MOA (Modifier or additive use); PREP (Preparation); USES (Uses)
(**oxidized** polysaccharides and products made thereof)
- RN 9004-34-6 HCAPLUS
- CN Cellulose (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS

RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L20 ANSWER 12 OF 35 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2001:330920 HCAPLUS

DOCUMENT NUMBER: 135:122663

TITLE: TEMPO-derivatives as catalysts in the
oxidation of primary alcohol groups in
carbohydrates

AUTHOR(S): Bragd, Petter L.; Besemer, Arie C.; van Bekkum, Herman

CORPORATE SOURCE: SCA Hygiene Products, Zeist, 3704 AJ, Neth.

SOURCE: Journal of Molecular Catalysis A: Chemical (2001),
170(1-2), 35-42

CODEN: JMCCF2; ISSN: 1381-1169

PUBLISHER: Elsevier Science B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 135:122663

AB Primary hydroxyl groups in aq. starch, pullulan and Me
.alpha.-D-glucopyranoside were oxidized to the corresponding carboxylic
acid functionalities by TEMPO-(4-X)-derivs. using sodium hypochlorite as
the primary oxidant. All the combinations of substrates and nitroxyl
radicals resulted in stoichiometric conversions, and the selectivity for
oxidn. of primary hydroxyls was high. Some depolymn. occurred throughout
the oxidn., esp. when 4-acetoxy and 4-mesyl-TEMPO were used. The pH
window of the activity of the inexpensive 4-acetamido-TEMPO was found to
be substantially lower from that of the other tested TEMPO-derivs.; thus
allowing milder reaction conditions. At pH 8, the rate of oxidn. was ca.
two times higher when 4-acetamido-TEMPO was used compared to the other
catalysts.

CC 33-1 (Carbohydrates)

Section cross-reference(s): 22

ST carbohydrate primary alc oxidn TEMPO deriv catalyst

IT Oxidation

Oxidation catalysts

(TEMPO-derivs. as catalysts in the oxidn. of primary alc.
groups in carbohydrates)

IT Carbohydrates, preparation

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
(Reactant or reagent)(TEMPO-derivs. as catalysts in the oxidn. of primary alc.
groups in carbohydrates)

IT 6599-87-7P 14691-89-5P 35203-66-8P

95407-69-5P

RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP (Preparation);

USES (Uses)

(TEMPO-derivs. as catalysts in the oxidn. of primary alc.
groups in carbohydrates)

IT 97-30-3, Methyl .alpha.-D-glucopyranoside 2226-96-2

9005-25-8D, Starch, potato, reactions 9057-02-7, Pullulan

RL: RCT (Reactant); RACT (Reactant or reagent)

(TEMPO-derivs. as catalysts in the oxidn. of primary alc.
groups in carbohydrates)

IT 6599-87-7P 14691-89-5P 35203-66-8P

95407-69-5P

RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP (Preparation);

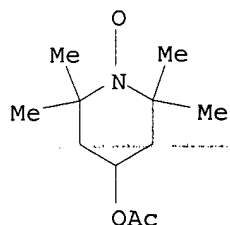
USES (Uses)

(TEMPO-derivs. as catalysts in the oxidn. of primary alc.
groups in carbohydrates)

RN 6599-87-7 HCAPLUS

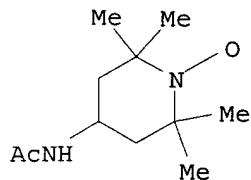
CN 1-Piperidinyloxy, 4-(acetyloxy)-2,2,6,6-tetramethyl- (9CI) (CA INDEX

NAME)



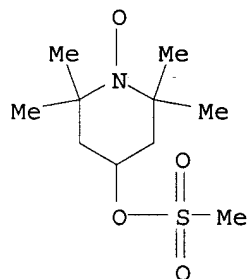
RN 14691-89-5 HCAPLUS

CN 1-Piperidinyloxy, 4-(acetylamino)-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



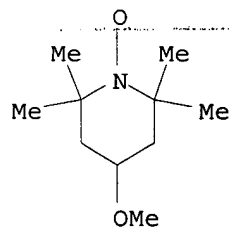
RN 35203-66-8 HCAPLUS

CN 1-Piperidinyloxy, 2,2,6,6-tetramethyl-4-[(methanesulfonyl)oxy]- (9CI) (CA INDEX NAME)



RN 95407-69-5 HCAPLUS

CN 1-Piperidinyloxy, 4-methoxy-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



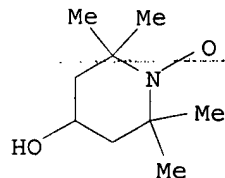
IT 2226-96-2 9005-25-8D, Starch, potato, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)

(TEMPO-derivs. as catalysts in the oxidn. of primary alc. groups in carbohydrates)

RN 2226-96-2 HCAPLUS

CN 1-Piperidinyloxy, 4-hydroxy-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



RN 9005-25-8 HCAPLUS

CN Starch (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

REFERENCE COUNT: 24 THERE ARE 24 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L20 ANSWER 13 OF 35 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2001:133709 HCAPLUS

DOCUMENT NUMBER: 134:180178

TITLE: Paper prepared from aldehyde modified cellulose pulp and the method of making the pulp

INVENTOR(S): Cimecioglu, Levent A.; Harkins, Danielle E.

PATENT ASSIGNEE(S): National Starch and Chemical Investment Holding Corporation, USA

SOURCE: Eur. Pat. Appl., 16 pp.

CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 3

PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|-------------------------------------------------------------------------------------------|------|----------|-----------------|----------|
| EP 1077286 | A1 | 20010221 | EP 2000-117283 | 20000817 |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO | | | | |
| US 6228126 | B1 | 20010508 | US 1999-375939 | 19990817 |
| BR 2000003644 | A | 20010327 | BR 2000-3644 | 20000817 |
| US 2002005262 | A1 | 20020117 | US 2001-754176 | 20010104 |

PRIORITY APPLN. INFO.: US 1999-375939 A 19990817

OTHER SOURCE(S): MARPAT 134:180178

AB Paper comprising aldehyde modified cellulose pulp having selected aldehyde content is disclosed. Another embodiment involves a method of prepg. cellulose aldehydes using selective oxidn. with a limited amt. of oxidant and a nitroxyl radical mediator and defined reaction conditions to provide oxidized cellulose material with effective aldehyde content making it particularly suitable for use in making paper with desirable wet strength, temporary wet strength and dry strength properties. Thus, to a 1600 g stirred suspension of Northern softwood kraft pulp at 3% consistency (48 g pulp) was added 4.8 mg 4-acetamido-TEMPO and 0.24 g NaBr [0.01% and 0.5% on wt. of pulp (owp), resp.]. The pH of the mixt. was adjusted to 9.5 with 0.49N NaOH. Na hypochlorite (10.11 g; 9.5% soln.; 2% owp), whose pH was also adjusted to 9.5 using concd. HCl, was then added all at once and the mixt. was stirred at 25.degree. for 30 min. The pH of the suspension

was maintained throughout using a Brinkmann pH STAT 718 Titrino at 9.5 with 0.49N NaOH (7.9 mL). At the end of the treatment period, the reaction was terminated by adding ascorbic acid to the mixt. until its pH was lowered to 4.0 to 4.5 range (.apprx.1 g). The pulp was filtered and washed extensively with water whose pH was adjusted to 4.5 to 5.5. It was then either reslurried in water for subsequent use in handsheet making or dried in air at room temp. for future use.

IC ICM D21H011-20
ICS C08B015-02

CC 43-6 (Cellulose, Lignin, Paper, and Other Wood Products)

ST cellulose pulp nitroxyl radical **oxidn** aldehyde deriv; wet strength agent **oxidized** cellulose aldehyde

IT Aldehydes, preparation
RL: IMF (Industrial manufacture); PREP (Preparation)
(**oxidized** cellulose pulp; paper prepd. from aldehyde modified cellulose pulp and method of making pulp using **oxidants** and nitroxyl radical mediator)

IT Cellulose pulp
Oxidation
Paper
(paper prepd. from aldehyde modified cellulose pulp and method of making pulp using **oxidants** and nitroxyl radical mediator)

IT 13824-96-9, Sodium hypobromite
RL: MOA (Modifier or additive use); USES (Uses)
(in-situ **oxidant**; paper prepd. from aldehyde modified cellulose pulp and method of making pulp using **oxidants** and nitroxyl radical mediator)

IT 14691-89-5, 4-Acetamido-TEMPO
RL: MOA (Modifier or additive use); USES (Uses)
(mediator; paper prepd. from aldehyde modified cellulose pulp and method of making pulp using **oxidants** and nitroxyl radical mediator)

IT 7647-15-6, Sodium bromide, uses
RL: MOA (Modifier or additive use); USES (Uses)
(**oxidant** precursor; paper prepd. from aldehyde modified cellulose pulp and method of making pulp using **oxidants** and nitroxyl radical mediator)

IT 7681-52-9, Sodium hypochlorite
RL: MOA (Modifier or additive use); USES (Uses)
(**oxidant**; paper prepd. from aldehyde modified cellulose pulp and method of making pulp using **oxidants** and nitroxyl radical mediator)

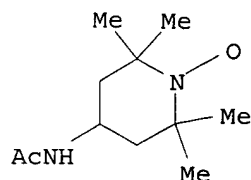
IT 9004-34-6DP, Cellulose, **oxidized**, uses
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(paper prepd. from aldehyde modified cellulose pulp and method of making pulp using **oxidants** and nitroxyl radical mediator)

IT 13408-29-2, Nitroxide radical
RL: MOA (Modifier or additive use); USES (Uses)
(paper prepd. from aldehyde modified cellulose pulp and method of making pulp using **oxidants** and nitroxyl radical mediator)

IT 14691-89-5, 4-Acetamido-TEMPO
RL: MOA (Modifier or additive use); USES (Uses)
(mediator; paper prepd. from aldehyde modified cellulose pulp and method of making pulp using **oxidants** and nitroxyl radical mediator)

RN 14691-89-5 HCAPLUS

CN 1-Piperidinyloxy, 4-(acetyl amino)-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



IT 9004-34-6DP, Cellulose, oxidized, uses
 RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
 (paper prepd. from aldehyde modified cellulose pulp and method of making pulp using oxidants and nitroxyl radical mediator)
 RN 9004-34-6 HCAPLUS
 CN Cellulose (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L20 ANSWER 14 OF 35 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2001:133708 HCAPLUS

DOCUMENT NUMBER: 134:180177

TITLE: Paper prepared from aldehyde modified cellulose pulp and the method of making the pulp

INVENTOR(S): Cimecioglu, Levent A.; Harkins, Danielle E.

PATENT ASSIGNEE(S): National Starch and Chemical Investment Holding Corporation, USA

SOURCE: Eur. Pat. Appl., 15 pp.

CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 3

PATENT INFORMATION:

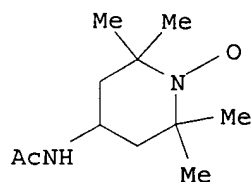
| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|-------------------------------------------------------------------------------------------|------|----------|-----------------|------------|
| EP 1077285 | A1 | 20010221 | EP 2000-111885 | 20000609 |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO | | | | |
| US 6228126 | B1 | 20010508 | US 1999-375939 | 19990817 |
| CN 1298986 | A | 20010613 | CN 2000-128615 | 20000816 |
| JP 2001115389 | A2 | 20010424 | JP 2000-247564 | 20000817 |
| PRIORITY APPLN. INFO.: | | | US 1999-375939 | A 19990817 |
| | | | US 2000-638319 | A 20000814 |

OTHER SOURCE(S): MARPAT 134:180177

AB Paper comprising aldehyde modified cellulose pulp having selected aldehyde content is disclosed. Another embodiment involves a method of prepg. cellulose aldehydes using selective oxidn. with a limited amt. of oxidant and a nitroxyl radical mediator and defined reaction conditions to provide oxidized cellulose material with effective aldehyde content making it particularly suitable for use in making paper with desirable wet strength, temporary wet strength and dry strength properties. Thus, to a 1600 g stirred suspension of Northern softwood kraft pulp at 3% consistency (48 g pulp) was added 4.8 mg 4-acetamido-TEMPO and 0.24 g NaBr [0.01% and 0.5% on wt. of pulp (owp), resp.]. The pH of the mixt. was adjusted to 9.5 with 0.49N NaOH. Na hypochlorite (10.11 g; 9.5% soln.; 2% owp), whose pH was also adjusted to 9.5 using concd. HCl, was then added all at once and

the mixt. was stirred at 25.degree. for 30 min. The pH of the suspension was maintained throughout using a Brinkmann pH STAT 718 Titrino at 9.5 with 0.49N NaOH (7.9 mL). At the end of the treatment period, the reaction was terminated by adding ascorbic acid to the mixt. until its pH was lowered to 4.0 to 4.5 range (.apprx.1 g). The pulp was filtered and washed extensively with water whose pH was adjusted to 4.5 to 5.5. It was then either reslurried in water for subsequent use in handsheet making or dried in air at room temp. for future use.

- IC ICM D21H011-20
ICS C08B015-02
- CC 43-6 (Cellulose, Lignin, Paper, and Other Wood Products)
- ST cellulose pulp nitroxyl radical **oxidn** aldehyde deriv; wet strength agent **oxidized** cellulose aldehyde
- IT Aldehydes, preparation
RL: IMF (Industrial manufacture); PREP (Preparation)
(**oxidized** cellulose pulp; paper prepd. from aldehyde modified cellulose pulp and method of making pulp using **oxidants** and nitroxyl radical mediator)
- IT Cellulose pulp
Oxidation
Paper
(paper prepd. from aldehyde modified cellulose pulp and method of making pulp using **oxidants** and nitroxyl radical mediator)
- IT 13824-96-9, Sodium hypobromite
RL: MOA (Modifier or additive use); USES (Uses)
(in-situ **oxidant**; paper prepd. from aldehyde modified cellulose pulp and method of making pulp using **oxidants** and nitroxyl radical mediator)
- IT ~~13408-29-2, Nitroxide radical~~ **14691-89-5, 4-Acetamido-TEMPO**
RL: MOA (Modifier or additive use); USES (Uses)
(mediator; paper prepd. from aldehyde modified cellulose pulp and method of making pulp using **oxidants** and nitroxyl radical mediator)
- IT 7647-15-6, Sodium bromide, uses
RL: MOA (Modifier or additive use); USES (Uses)
(**oxidant** precursor; paper prepd. from aldehyde modified cellulose pulp and method of making pulp using **oxidants** and nitroxyl radical mediator)
- IT 7681-52-9, Sodium hypochlorite
RL: MOA (Modifier or additive use); USES (Uses)
(**oxidant**; paper prepd. from aldehyde modified cellulose pulp and method of making pulp using **oxidants** and nitroxyl radical mediator)
- IT 9004-34-6DP, Cellulose, **oxidized**, uses
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(paper prepd. from aldehyde modified cellulose pulp and method of making pulp using **oxidants** and nitroxyl radical mediator)
- IT **14691-89-5, 4-Acetamido-TEMPO**
RL: MOA (Modifier or additive use); USES (Uses)
(mediator; paper prepd. from aldehyde modified cellulose pulp and method of making pulp using **oxidants** and nitroxyl radical mediator)
- RN 14691-89-5 HCAPLUS
- CN 1-Piperidinyloxy, 4-(acetylamino)-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



IT 9004-34-6DP, Cellulose, **oxidized**, uses
 RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
 (paper prepd. from aldehyde modified cellulose pulp and method of making pulp using **oxidants** and nitroxyl radical mediator)
 RN 9004-34-6 HCAPLUS
 CN Cellulose (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L20 ANSWER 15 OF 35 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2001:133666 HCAPLUS

DOCUMENT NUMBER: 134:180174

TITLE: Polysaccharide aldehydes prepared by **oxidation** method and used as strength additives in papermaking

INVENTOR(S): Cimecioglu, Levent A.; Thomaidis, John S.

PATENT ASSIGNEE(S): National Starch and Chemical Investment Holding Corporation, USA

SOURCE: Eur. Pat. Appl., 15 pp.

CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|-------------------------------------------------------------------------------------------|------|---------------------------|-----------------|----------|
| EP 1077221 | A1 | 20010221 | EP 2000-117282 | 20000817 |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO | | | | |
| BR 2000003645 | A | 20010327 | BR 2000-3645 | 20000817 |
| PRIORITY APPLN. INFO.: | | US 1999-375931 A 19990817 | | |

OTHER SOURCE(S): MARPAT 134:180174

AB Polysaccharide aldehydes are prepd. using selective oxidn. involving the use of nitroxyl radical mediated aq. oxidn. with a limited amt. of oxidant and defined reaction conditions. These polysaccharide aldehyde derivs. having max. effective aldehyde and minimal carboxylic acid levels making them esp. useful as wet, temporary wet and dry strength additives for paper. Thus, a papermaking additive was prepd. by oxidizing a granular starch using a system contg. 2,2,6,6-tetramethylpiperidine-1-oxyl as nitroxyl radical, NaBr, and Na hypochlorite as oxidant.

IC ICM C08B031-18

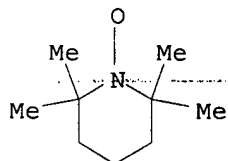
ICS C08B011-20; C08B037-00; D21H017-24

CC 43-6 (Cellulose, Lignin, Paper, and Other Wood Products)

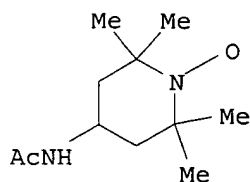
Section cross-reference(s): 44

ST starch aldehyde deriv manuf nitroxyl radical **oxidn**; wet strength agent **oxidized** starch aldehyde deriv; papermaking additive **oxidized** starch aldehyde manuf

- IT Aldehydes, preparation
RL: IMF (Industrial manufacture); PREP (Preparation)
(oxidized polysaccharides; polysaccharide aldehydes prep. by oxidn. method and used as strength additives in papermaking)
- IT Polysaccharides, uses
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(oxidized; polysaccharide aldehydes prep. by oxidn. method and used as strength additives in papermaking)
- IT Oxidation
Paper
(polysaccharide aldehydes prep. by oxidn. method and used as strength additives in papermaking)
- IT 13824-96-9, Sodium hypobromite
RL: MOA (Modifier or additive use); USES (Uses)
(in-situ oxidant; polysaccharide aldehydes prep. by oxidn. method and used as strength additives in papermaking)
- IT 2564-83-2, TEMPO 14691-89-5, 4-Acetamido-TEMPO
RL: MOA (Modifier or additive use); USES (Uses)
(mediator; polysaccharide aldehydes prep. by oxidn. method and used as strength additives in papermaking)
- IT 7647-15-6, Sodium bromide, uses
RL: MOA (Modifier or additive use); USES (Uses)
(oxidant precursor; polysaccharide aldehydes prep. by oxidn. method and used as strength additives in papermaking)
- IT 7681-52-9, Sodium hypochlorite
RL: MOA (Modifier or additive use); USES (Uses)
(oxidant; polysaccharide aldehydes prep. by oxidn. method and used as strength additives in papermaking)
- IT 9000-30-ODP, Guar gum, oxidized 9004-34-6DP, Cellulose, oxidized, uses 9004-62-ODP, 2-Hydroxyethyl cellulose, oxidized 9005-25-8DP, Starch, oxidized, cationic derivs., uses 9057-02-7DP, Pullulan, oxidized
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polysaccharide aldehydes prep. by oxidn. method and used as strength additives in papermaking)
- IT 2564-83-2, TEMPO 14691-89-5, 4-Acetamido-TEMPO
RL: MOA (Modifier or additive use); USES (Uses)
(mediator; polysaccharide aldehydes prep. by oxidn. method and used as strength additives in papermaking)
- RN 2564-83-2 HCAPLUS
- CN 1-Piperidinyloxy, 2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



- RN 14691-89-5 HCAPLUS
- CN 1-Piperidinyloxy, 4-(acetylamino)-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



IT 9004-34-6DP, Cellulose, **oxidized**, uses
 9005-25-8DP, Starch, **oxidized**, cationic derivs., uses
 RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or
 engineered material use); PREP (Preparation); USES (Uses)
 (polysaccharide aldehydes prepd. by **oxidn.** method and used as
 strength additives in papermaking)

RN 9004-34-6 HCAPLUS
 CN Cellulose (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 9005-25-8 HCAPLUS
 CN Starch (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

REFERENCE COUNT: 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS
 RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L20 ANSWER 16 OF 35 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2001:124503 HCAPLUS

DOCUMENT NUMBER: ~~134:180182~~

TITLE: Carboxyl group-containing polysaccharide fibrous
 materials and production method thereof

INVENTOR(S): Isogai, Akira

PATENT ASSIGNEE(S): Daicel Chemical Industries, Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 8 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|------------------------|------|----------|-----------------|------------|
| JP 2001049591 | A2 | 20010220 | JP 2000-141624 | 20000515 |
| PRIORITY APPLN. INFO.: | | | JP 1999-151915 | A 19990531 |

OTHER SOURCE(S): MARPAT 134:180182

AB Title materials comprise polysaccharides contg. 0.1-1 mmol carboxyl
 groups/1 g materials and are obtained by surface oxidn. of polysaccharide
 fibers with oxidizing agents in the presence of N-oxyl compds. Articles
 with good additive adsorption are prepd. without effecting water retention
 and mech. properties. Thus, 10 g Kraft pulp (carboxyl content 0.06
 mmol/g) was treated with 10.5% sodium hypochlorite in the presence of
 0.025 g TEMPO and 0.25 g sodium bromide at 20.degree. for 2 h while
 maintaining pH at 10.5 with NaOH to give a cellulose fiber with max.
 carboxyl content 0.47 mmol/g, which was used to prep. a paper sheet with
 water retention <200% and tensile index >35 N-m/g.

IC ICM D21H011-20

CC 43-7 (Cellulose, Lignin, Paper, and Other Wood Products)
 Section cross-reference(s): 40

ST carboxyl polysaccharide fibrous material prepn **oxidn**

- IT Fibers
 RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
 (carboxylated polysaccharides; prepn. of carboxyl group-contg. polysaccharide fibrous materials by oxidn.)
- IT Polysaccharides, uses
 RL: IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)
 (carboxylated, fibers; prepn. of carboxyl group-contg. polysaccharide fibrous materials by oxidn.)
- IT Fibrous materials
 (carboxylated; prepn. of carboxyl group-contg. polysaccharide fibrous materials by oxidn.)
- IT Fibers
 RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
 (cellulosic; prepn. of carboxyl group-contg. polysaccharide fibrous materials by oxidn.)
- IT Halogen acids
 RL: NUU (Other use, unclassified); USES (Uses)
 (hypohalous acids, oxidizing agents; prepn. of carboxyl group-contg. polysaccharide fibrous materials by oxidn.)
- IT Paper
 (kraft, carboxylated; prepn. of carboxyl group-contg. polysaccharide fibrous materials by oxidn.)
- IT Halogen compounds
 RL: NUU (Other use, unclassified); USES (Uses)
 (oxides, oxidizing agents; prepn. of carboxyl group-contg. polysaccharide fibrous materials by oxidn.)
- IT Halogens
 Peroxides, uses
 RL: NUU (Other use, unclassified); USES (Uses)
 (oxidizing agents; prepn. of carboxyl group-contg. polysaccharide fibrous materials by oxidn.)
- IT Alkali metal bromides
 Alkali metal iodides
 Bromides, uses
 Iodides, uses
 RL: CAT (Catalyst use); USES (Uses)
 (oxidn. catalysts; prepn. of carboxyl group-contg. polysaccharide fibrous materials by oxidn.)
- IT Halogen acids
 Per compounds
 RL: NUU (Other use, unclassified); USES (Uses)
 (perhalic acids, oxidizing agents; prepn. of carboxyl group-contg. polysaccharide fibrous materials by oxidn.)
- IT Oxidizing agents
 (prepn. of carboxyl group-contg. polysaccharide fibrous materials by oxidn.)
- IT 7681-52-9, Sodium hypochlorite 11104-93-1, Nitrogen oxide, uses
 RL: NUU (Other use, unclassified); USES (Uses)
 (oxidizing agent; prepn. of carboxyl group-contg. polysaccharide fibrous materials by oxidn.)
- IT 2564-83-2, TEMPO 7647-15-6, Sodium bromide, uses
 RL: CAT (Catalyst use); USES (Uses)
 (oxidn. catalyst; prepn. of carboxyl group-contg. polysaccharide fibrous materials by oxidn.)
- IT 9004-34-6DP, Cellulose, carboxylated, uses

RL: IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)

(prepn. of carboxyl group-contg. polysaccharide fibrous materials by oxidn.)

IT 2564-83-2, TEMPO

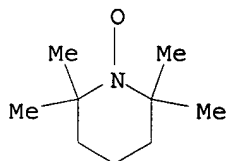
RL: CAT (Catalyst use); USES (Uses)

(oxidn. catalyst; prepn. of carboxyl group-contg.

polysaccharide fibrous materials by oxidn.)

RN 2564-83-2 HCAPLUS

CN 1-Piperidinyloxy, 2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



IT 9004-34-6DP, Cellulose, carboxylated, uses

RL: IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)

(prepn. of carboxyl group-contg. polysaccharide fibrous materials by oxidn.)

RN 9004-34-6 HCAPLUS

CN Cellulose (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

L20 ANSWER 17 OF 35 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2001:70812 HCAPLUS

DOCUMENT NUMBER: 134:281053

TITLE: TEMPO-mediated oxidation of maltodextrins and D-glucose: effect of pH on the selectivity and sequestering ability of the resulting polycarboxylates

AUTHOR(S): Thaburet, Jean-Francois; Merbouh, Naby; Ibert, Mathias; Marsais, Francis; Queguiner, Guy

CORPORATE SOURCE: Institut de Recherche en Chimie Organique Fine (IRCOF), UMR 6014 (CNRS), INSA of Rouen, Mont-Saint-Aignan, F-76131, Fr.

SOURCE: Carbohydrate Research (2001), 330(1), 21-29

CODEN: CRBRAT; ISSN: 0008-6215

PUBLISHER: Elsevier Science Ltd.

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 134:281053

AB Maltodextrins were oxidized to poly-glucuronic acids with the ternary oxidn. system: NaOCl-NaBr-2,2,6,6-tetramethylpiperidine-1-oxyl (TEMPO). The chemoselective oxidn. at the primary alc. groups was shown to be strongly pH dependent. Oxidn. of polysaccharides was best achieved at pH 9.5 in order to minimize depolymn., whereas oxidn. of oligosaccharides required stronger alk. conditions (pH 11-11.5). The resulting sodium polyglucuronates present interesting sequestering properties, the best of which being obtained from maltodextrins with the highest ds.p. The same oxidn. process allowed the convenient conversion of D-glucose to D-glucaric acid in high yield (>90%), under strongly basic conditions (pH>11.5).

- CC 33-5 (Carbohydrates)
Section cross-reference(s): 22, 61
- ST maltodextrin glucose TEMPO regiospecific oxidn prepn glucuronate
polyglucuronate; calcium sequestering agent prepn glucuronate
polyglucuronate; pH effect TEMPO regiospecific oxidn prepn
glucuronate polyglucuronate
- IT pH
(effect of on prepn. of glucuronic or poly-glucuronic acids for use as
calcium-sequestering agents by TEMPO-mediated regiospecific
oxidn. of maltodextrins or D-glucose)
- IT Uronic acids
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(polyuronic acids; prepn. of glucuronic or poly-glucuronic acids for
use as calcium sequestering agents by TEMPO-mediated regiospecific
oxidn. of maltodextrins or D-glucose)
- IT Oxidation
Regiochemistry
Sequestering agents
(prepn. of glucuronic or poly-glucuronic acids for use as calcium
sequestering agents by TEMPO-mediated regiospecific oxidn. of
maltodextrins or D-glucose)
- IT Oligosaccharides, preparation
Polysaccharides, preparation
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP
(Preparation); RACT (Reactant or reagent)
(prepn. of glucuronic or poly-glucuronic acids for use as calcium
sequestering agents by TEMPO-mediated regiospecific oxidn. of
maltodextrins or D-glucose)
- IT Uronic acids
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(prepn. of glucuronic or poly-glucuronic acids for use as calcium
sequestering agents by TEMPO-mediated regiospecific oxidn. of
maltodextrins or D-glucose)
- IT 7440-70-2, Calcium, reactions
RL: MSC (Miscellaneous); RCT (Reactant); RACT (Reactant or reagent)
(prepn. of glucuronic or poly-glucuronic acids for use as calcium
sequestering agents by TEMPO-mediated regiospecific oxidn. of
maltodextrins or D-glucose)
- IT 9005-25-8DP, Starch, C6-oxidized, preparation
9050-36-6DP, Maltodextrin, C6-oxidized 13978-96-6P, Sodium
glucarate 95839-14-8P 197388-71-9DP, derivs. 332853-35-7P
332853-37-9DP, derivs. 333316-19-1DP, derivs.
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(prepn. of glucuronic or poly-glucuronic acids for use as calcium
sequestering agents by TEMPO-mediated regiospecific oxidn. of
maltodextrins or D-glucose)
- IT 50-99-7, D-Glucose, reactions 585-88-6, Maltitol 2564-83-2,
Tempo 7647-15-6, Sodium bromide, reactions 7681-52-9, Sodium
hypochlorite 9005-25-8, Starch, reactions 9050-36-6, Maltodextrin
32860-62-1, Maltotriitol
RL: RCT (Reactant); RACT (Reactant or reagent)
(prepn. of glucuronic or poly-glucuronic acids for use as calcium
sequestering agents by TEMPO-mediated regiospecific oxidn. of
maltodextrins or D-glucose)
- IT 9005-25-8DP, Starch, C6-oxidized, preparation
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(prepn. of glucuronic or poly-glucuronic acids for use as calcium
sequestering agents by TEMPO-mediated regiospecific oxidn. of
maltodextrins or D-glucose)
- RN 9005-25-8 HCAPLUS

CN Starch (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

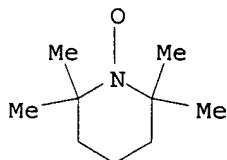
IT 2564-83-2, Tempo

RL: RCT (Reactant); RACT (Reactant or reagent)

(prepn. of glucuronic or poly-glucuronic acids for use as calcium
sequestering agents by TEMPO-mediated regiospecific oxidn. of
maltodextrins or D-glucose)

RN 2564-83-2, HCAPLUS

CN 1-Piperidinyloxy, 2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



REFERENCE COUNT:

24

THERE ARE 24 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L20 ANSWER 18 OF 35 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2000:901739 HCAPLUS

DOCUMENT NUMBER: 134:143759

TITLE:

Action of Azotobacter vinelandii poly-.beta.-D-
mannuronic acid C-5-epimerase on synthetic
D-glucuronans

AUTHOR(S):

Chang, Pahn S.; Mukerjea, Rupendra; Fulton, D. Bruce;
Robyt, John F.

CORPORATE SOURCE:

Laboratory of Carbohydrate Chemistry and Enzymology,
Iowa State University, Ames, IA, 50011, USA

SOURCE:

Carbohydrate Research (2000), 329(4), 913-922
CODEN: CRBRAT; ISSN: 0008-6215

PUBLISHER:

Elsevier Science Ltd.

DOCUMENT TYPE:

Journal

LANGUAGE:

English

AB

Eleven different glucans (wheat starch, potato amylopectin, potato amylose, pullulan, alternan, regular comb dextran, .alpha.-cellulose, microcryst. cellulose, CM-cellulose, chitin, and chitosan) that had their C-6 primary alc. groups oxidized to carboxyl groups by reaction with 2,2,6,6-tetramethyl-1-piperidine oxoammonium ion (TEMPO), were reacted with Azotobacter vinelandii poly-.beta.-(1.fwdarw.4)-D-mannuronic acid C-5-epimerase. All of the oxidized polysaccharides reacted with the C-5-epimerase, as evidenced by comparing: (1) differences in the relative viscosities; (2) differences in the carbazole reaction; (3) differences in their susceptibility to acid hydrolysis, and (4) differences in their ability to form calcium gels, before and after reaction. We further show the formation of L-iduronic acid from D-glucuronic acid for oxidized and epimerized amylose by 2D NOESY and COSY + 1H NMR.

CC

7-3 (Enzymes)

IT

1398-61-4DP, Chitin, C-6 oxidized 9000-11-7DP, CM-cellulose, C-6 oxidized 9004-34-6DP, .alpha.-Cellulose, C-6 oxidized 9004-54-0DP, Dextran, C-6 oxidized, biological studies 9005-25-8DP, Starch, C-6 oxidized, biological studies 9005-82-7DP, Amylose, C-6 oxidized 9012-76-4DP, Chitosan, C-6 oxidized 9037-22-3DP, Amylopectin, C-6 oxidized 9057-02-7DP, Pullulan, C-6 oxidized 136510-13-9DP, Alternan, C-6 oxidized

RL: BPR (Biological process); BSU (Biological study, unclassified); PRP (Properties); SPN (Synthetic preparation); BIOL (Biological study); PREP (Preparation); PROC (Process)

(action of Azotobacter vinelandii poly-.beta.-D-mannuronic acid C-5-epimerase on synthetic D-glucuronans)

IT 2564-83-2, TEMPO

RL: BUU (Biological use, unclassified); RCT (Reactant); BIOL (Biological study); RACT (Reactant or reagent); USES (Uses)

(action of Azotobacter vinelandii poly-.beta.-D-mannuronic acid C-5-epimerase on synthetic D-glucuronans)

IT 9004-34-6DP, .alpha.-Cellulose, C-6 oxidized

9005-25-8DP, Starch, C-6 oxidized, biological studies

RL: BPR (Biological process); BSU (Biological study, unclassified); PRP (Properties); SPN (Synthetic preparation); BIOL (Biological study); PREP (Preparation); PROC (Process)

(action of Azotobacter vinelandii poly-.beta.-D-mannuronic acid C-5-epimerase on synthetic D-glucuronans)

RN 9004-34-6 HCAPLUS

CN Cellulose (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 9005-25-8 HCAPLUS

CN Starch (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

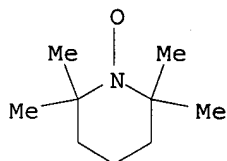
IT 2564-83-2, TEMPO

RL: BUU (Biological use, unclassified); RCT (Reactant); BIOL (Biological study); RACT (Reactant or reagent); USES (Uses)

(action of Azotobacter vinelandii poly-.beta.-D-mannuronic acid C-5-epimerase on synthetic D-glucuronans)

RN 2564-83-2 HCAPLUS

CN 1-Piperidinyloxy, 2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 32 THERE ARE 32 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L20 ANSWER 19 OF 35 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2000:753314 HCAPLUS

DOCUMENT NUMBER: 134:149146

TITLE: TEMPO-oxidation of cellulose: synthesis and characterization of polyglucuronans

AUTHOR(S): Tahiri, Choukri; Vignon, Michel R.

CORPORATE SOURCE: Centre de Recherches sur les Macromolecules Vegetales, Universite Joseph Fourier, Grenoble, 38041, Fr.

SOURCE: Cellulose (Dordrecht, Netherlands) (2000), 7(2), 177-188

CODEN: CELLE8; ISSN: 0969-0239

PUBLISHER: Kluwer Academic Publishers

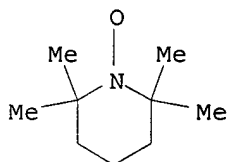
DOCUMENT TYPE: Journal

LANGUAGE: English

AB A series of pseudo amorphous cellulose samples were subjected to reaction

with catalytic amts. of 2,2,6,6-tetramethyl-1-piperidine oxoammonium salt (TEMPO), NaOCl and NaBr in H₂O. In all samples the primary alc. groups were selectively oxidized into carboxyl groups, and several H₂O-sol. polyglucuronic acid Na salts were obtained with different mol. wts. With this reaction system, the degrdn. of the amorphous cellulose samples may be minimized, provided the oxidn. is performed at 4.degree. and at const. pH 10, with controlled amts. of TEMPO and NaOCl.

CC 43-3 (~~Cellulose, Lignin, Paper, and Other Wood Products~~)
 ST cellulose **oxidn** TEMPO sodium hypochloride; polyglucuronic acid sodium prepn amorphous cellulose **oxidn**
 IT **Oxidation**
 (TEMPO-**oxidn.** of cellulose, synthesis and characterization of polyglucuronans)
 IT 2564-83-2, TEMPO 7647-15-6, Sodium bromide, uses
 RL: CAT (Catalyst use); USES (Uses)
 (TEMPO-**oxidn.** of cellulose, synthesis and characterization of polyglucuronans)
 IT 9004-34-6DP, Cellulose, **oxidized**, preparation
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (TEMPO-**oxidn.** of cellulose, synthesis and characterization of polyglucuronans)
 IT 7681-52-9, Sodium hypochlorite
 RL: NUU (Other use, unclassified); USES (Uses)
 (**oxidn.** agent; TEMPO-**oxidn.** of cellulose, synthesis and characterization of polyglucuronans)
 IT 9004-34-6, Cellulose, processes
 RL: PEP (Physical, engineering or chemical process); PROC (Process)
 (**oxidn.**; TEMPO-**oxidn.** of cellulose, synthesis and characterization of polyglucuronans)
 IT 2564-83-2, TEMPO
 RL: CAT (Catalyst use); USES (Uses)
 (TEMPO-**oxidn.** of cellulose, synthesis and characterization of polyglucuronans)
 RN 2564-83-2 HCAPLUS
 CN 1-Piperidinyloxy, 2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



IT 9004-34-6DP, Cellulose, **oxidized**, preparation
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (TEMPO-**oxidn.** of cellulose, synthesis and characterization of polyglucuronans)
 RN 9004-34-6 HCAPLUS
 CN Cellulose (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

REFERENCE COUNT: 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L20 ANSWER 20 OF 35 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2000:742147 HCAPLUS

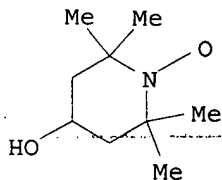
DOCUMENT NUMBER: 133:311086

TITLE: Oxidized starch, its manufacture and use,

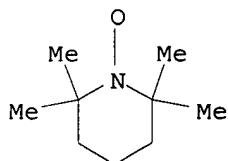
INVENTOR(S): especially as superabsorbent
Fisher, Richard; Herrmann, Wolfgang A.; Zoller, P.
Jochen
PATENT ASSIGNEE(S): Celanese Chemicals Europe G.m.b.H., Germany
SOURCE: PCT Int. Appl., 28 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|----------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|------------------|----------|
| WO 2000061639 | A1 | 20001019 | WO 2000-EP2456 | 20000321 |
| W: US | | | | |
| RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE | | | | |
| DE 19914067 | C1 | 20010315 | DE 1999-19914067 | 19990327 |
| PRIORITY APPLN. INFO.: | | DE 1999-19914067 A 19990327 | | |
| OTHER SOURCE(S): | | MARPAT 133:311086 | | |
| AB | The title starch, useful as superabsorbent, seed and/or fertilizer carrier or soil improving agent, as material for galenicals or in adhesives and binders, is manufd. by oxidizing native starch in an acid solvent by (a) introducing 0.1-1.9 equiv (based on anhydroglucose units present in the native starch) of the oxidant in acid the starch soln., (b) carrying out the oxidn. in the presence of a catalyst contg. (i) MeReO ₃ or an alkylrhenium oxide or ReO ₃ or Re ₂ O ₇ , (ii) a di-tertiary alkyl nitroxyl, and (iii) hydrogen halide dissolved in a carboxylic acid, (c) carrying out oxidn. in H ₂ O, a carboxylic acid, an org. solvent or a mixt. contg. .gtoreq.2 of these ingredients, at 0-50.degree.. Thus, a superabsorbent was prepd. by oxidn. of starch suspended in AcOH with 30% aq. H ₂ O ₂ , in the presence of MeReO ₃ and HBr. | | | |
| IC | ICM C08B031-18 | | | |
| CC | 44-6 (Industrial Carbohydrates) | | | |
| ST | starch oxidn hydrogen peroxide rhenium oxide catalyst; methyltrioxorhenium catalyst starch oxidn hydrogen peroxide; superabsorbent manuf starch oxidn hydrogen peroxide methyltrioxorhenium catalyst | | | |
| IT | Seed (carrier; manuf. of oxidized starch for use as) | | | |
| IT | Fertilizers RL: FFD (Food or feed use); BIOL (Biological study); USES (Uses) (carrier; manuf. of oxidized starch for use as) | | | |
| IT | Superabsorbents (manuf. of oxidized starch for use as) | | | |
| IT | Adhesives Binders Drugs Soil amendments (manuf. of oxidized starch for use in) | | | |
| IT | Oxidation Oxidation catalysts (oxidn. of starch with hydrogen peroxide in presence of rhenium catalyst and ditertiary alkyl nitroxyl and hydrogen bromide) | | | |
| IT | 1314-28-9, Rhenium trioxide (ReO ₃) 1314-68-7, Rhenium oxide (Re ₂ O ₇) 70197-13-6, Methyltrioxorhenium RL: CAT (Catalyst use); USES (Uses) (oxidn. of starch with hydrogen peroxide in acetic acid in presence of rhenium catalyst and ditertiary alkyl nitroxyl and hydrogen bromide) | | | |

- IT 9005-25-8DP, Starch, **oxidized**, preparation
 RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
 (oxidn. of starch with hydrogen peroxide in acetic acid in presence of rhenium catalyst and ditertiary alkyl nitroxyl and hydrogen bromide)
- IT 64-19-7, Acetic acid, uses
 RL: NUU (Other use, unclassified); USES (Uses)
 (oxidn. of starch with hydrogen peroxide in acetic acid in presence of rhenium catalyst and ditertiary alkyl nitroxyl and hydrogen bromide)
- IT 10035-10-6, Hydrogen bromide, uses
 RL: NUU (Other use, unclassified); USES (Uses)
 (oxidn. of starch with hydrogen peroxide in presence of rhenium catalyst and ditertiary alkyl nitroxyl and)
- IT 7722-84-1, Hydrogen peroxide, uses
 RL: NUU (Other use, unclassified); USES (Uses)
 (oxidn. of starch with hydrogen peroxide in presence of rhenium catalyst and ditertiary alkyl nitroxyl and hydrogen bromide)
- IT 2226-96-2 2564-83-2, TEMPO 14691-88-4,
 2,2,6,6-Tetramethyl-4-amino-piperidin-1-yloxy
 RL: NUU (Other use, unclassified); USES (Uses)
 (oxidn. of starch with hydrogen peroxide in presence of rhenium catalyst and hydrogen bromide and)
- IT 9005-25-8DP, Starch, **oxidized**, preparation
 RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
 (oxidn. of starch with hydrogen peroxide in acetic acid in presence of rhenium catalyst and ditertiary alkyl nitroxyl and hydrogen bromide)
- RN 9005-25-8 HCAPLUS
 CN Starch (8CI, 9CI) (CA INDEX NAME)
- *** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
- IT 2226-96-2 2564-83-2, TEMPO 14691-88-4,
 2,2,6,6-Tetramethyl-4-amino-piperidin-1-yloxy
 RL: NUU (Other use, unclassified); USES (Uses)
 (oxidn. of starch with hydrogen peroxide in presence of rhenium catalyst and hydrogen bromide and)
- RN 2226-96-2 HCAPLUS
 CN 1-Piperidinyloxy, 4-hydroxy-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)

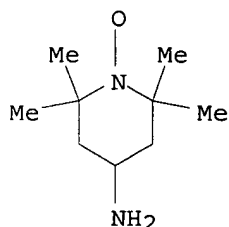


- RN 2564-83-2 HCAPLUS
 CN 1-Piperidinyloxy, 2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



RN 14691-88-4 HCAPLUS

CN 1-Piperidinyloxy, 4-amino-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L20 ANSWER 21 OF 35 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2000:608928 HCAPLUS

DOCUMENT NUMBER: 133:192110

TITLE: Process for selective **oxidation** of primary
alcohols and novel carbohydrate aldehydes

INVENTOR(S): Jetten, Jan Matthijs; Van Den Dool, Ronald Tako
Marinus; Van Hartingsveldt, Wim; Van Wandelen, Mario
Tarcisius Ragmandus

PATENT ASSIGNEE(S): Nederlandse Organisatie voor Toegepast-
Natuurwetenschappelijk Onderzoek TNO, Neth.

SOURCE: PCT Int. Appl., 13 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|----------|-----------------|----------|
| WO 2000050621 | A2 | 20000831 | WO 2000-NL117 | 20000224 |
| W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG | | | | |
| WO 2000050388 | A1 | 20000831 | WO 2000-NL118 | 20000224 |
| W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, | | | | |

SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM,
 AZ, BY, KG, KZ, MD, RU, TJ, TM
 RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE,
 DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF,
 CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

| | | | | |
|---------------|----|----------|----------------|----------|
| BR 2000008474 | A | 20020122 | BR 2000-8474 | 20000224 |
| BR 2000008478 | A | 20020122 | BR 2000-8478 | 20000224 |
| EP 1173409 | A1 | 20020123 | EP 2000-906769 | 20000224 |

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
 IE, SI, LT, LV, FI, RO

| | | | | |
|------------|----|----------|----------------|----------|
| EP 1177308 | A2 | 20020206 | EP 2000-906768 | 20000224 |
|------------|----|----------|----------------|----------|

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
 IE, SI, LT, LV, FI, RO

| | | | | |
|---------------|----|----------|----------------|----------|
| JP 2002537374 | T2 | 20021105 | JP 2000-600972 | 20000224 |
|---------------|----|----------|----------------|----------|

PRIORITY APPLN. INFO.: EP 1999-200536 A 19990224
 WO 2000-NL117 W 20000224
 WO 2000-NL118 W 20000224

AB A process for producing aldehydes, and/or carboxylic acids is described, in which a primary alc., esp. a carbohydrate, is oxidized using a catalytic amt. of a nitrosonium compd. obtained by oxidizing a nitroxyl compd. in the presence of an enzyme compd. capable of oxidn. Further described are oxidized carbohydrates contg. at least 1 cyclic monosaccharide chain group carrying a carbaldehyde group per 25 monosaccharide units and per mol.

IC ICM C12P001-00
 ICS C12P019-00; C12P013-00; C12P007-24; C07C045-29; C07C045-32; C07C045-38; C07C045-39; C07H001-00; C08B001-00; C07H003-00; C07H005-04; C08L001-00; C08L003-00

CC 16-1 (Fermentation and Bioindustrial Chemistry)
 Section cross-reference(s): 33

ST carbohydrate alc **oxidn** aldehyde nitrosonium

IT Carbohydrates, preparation
 RL: BMF (Bioindustrial manufacture); BPN (Biosynthetic preparation); BIOL (Biological study); PREP (Preparation)
 (aldehyde; selective **oxidn.** of primary alcs. and novel carbohydrate aldehydes)

IT Aldehydes, preparation
 RL: BMF (Bioindustrial manufacture); BPN (Biosynthetic preparation); BIOL (Biological study); PREP (Preparation)
 (carbohydrate; selective **oxidn.** of primary alcs. and novel carbohydrate aldehydes)

IT Alcohols, biological studies
 RL: BPR (Biological process); BSU (Biological study, unclassified); RCT (Reactant); BIOL (Biological study); PROC (Process); RACT (Reactant or reagent)
 (primary; selective **oxidn.** of primary alcs. and novel carbohydrate aldehydes)

IT Emulsifying agents
 Thickening agents
 (selective **oxidn.** of primary alcs. and novel carbohydrate aldehydes)

IT Uronic acids
 RL: BMF (Bioindustrial manufacture); BPN (Biosynthetic preparation); BIOL (Biological study); PREP (Preparation)
 (selective **oxidn.** of primary alcs. and novel carbohydrate aldehydes)

IT 9005-25-8DP, Starch, 6-aldehyde, preparation 9057-02-7DP, Pullulan, uronic acid
 RL: BMF (Bioindustrial manufacture); BPN (Biosynthetic preparation); BIOL (Biological study); PREP (Preparation)

(selective oxidn. of primary alcs. and novel carbohydrate aldehydes)

IT 9004-34-6, Cellulose, biological studies 9005-25-8, Starch, biological studies 9057-02-7, Pullulan
 RL: BPR (Biological process); BSU (Biological study, unclassified); RCT (Reactant); BIOL (Biological study); PROC (Process); RACT (Reactant or reagent)

(selective oxidn. of primary alcs. and novel carbohydrate aldehydes)

IT 9003-99-0, E.C. 1.11.1.7 80498-15-3, Laccase
 RL: CAT (Catalyst use); USES (Uses)

(selective oxidn. of primary alcs. and novel carbohydrate aldehydes)

IT 2226-96-2, 4-Hydroxy-TEMPO 2564-83-2, TEMPO
 3229-53-6, Proxyl 14691-89-5, 4-Acetamido-TEMPO
 25554-61-4, Doxyl
 RL: RCT (Reactant); RACT (Reactant or reagent)

(selective oxidn. of primary alcs. and novel carbohydrate aldehydes)

IT 9005-25-8DP, Starch, 6-aldehyde, preparation
 RL: BMF (Bioindustrial manufacture); BPN (Biosynthetic preparation); BIOL (Biological study); PREP (Preparation)

(selective oxidn. of primary alcs. and novel carbohydrate aldehydes)

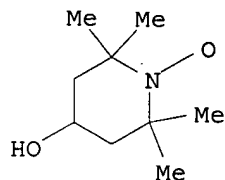
RN 9005-25-8 HCAPLUS
 CN Starch (8CI, 9CI) (CA INDEX NAME)

. STRUCTURE DIAGRAM IS NOT AVAILABLE.

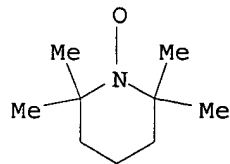
IT 2226-96-2, 4-Hydroxy-TEMPO 2564-83-2, TEMPO
 3229-53-6, Proxyl 14691-89-5, 4-Acetamido-TEMPO
 RL: RCT (Reactant); RACT (Reactant or reagent)

(selective oxidn. of primary alcs. and novel carbohydrate aldehydes)

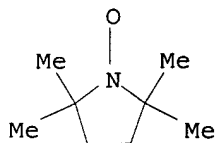
RN 2226-96-2 HCAPLUS
 CN 1-Piperidinyloxy, 4-hydroxy-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



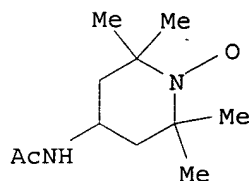
RN 2564-83-2 HCAPLUS
 CN 1-Piperidinyloxy, 2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



RN 3229-53-6 HCAPLUS
 CN 1-Pyrrolidinyloxy, 2,2,5,5-tetramethyl- (7CI, 8CI, 9CI) (CA INDEX NAME)



RN 14691-89-5 HCAPLUS
 CN 1-Piperidinyloxy, 4-(acetylamino)-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



L20 ANSWER 22 OF 35 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2000:608782 HCAPLUS

DOCUMENT NUMBER: 133:209532

TITLE: **Oxidized cellulose-containing fibrous materials, preparation thereof and products therefrom**
 INVENTOR(S): Jaschinski, Thomas; Gunnars, Susanna; Besemer, Arie Cornelis; Bragd, Petter; Jetten, Jan Matthijs; Van den Dool, Ronald; Van Hartingsveldt, Willem

PATENT ASSIGNEE(S): Sca Hygiene Products G.m.b.H., Germany; Sca Hygiene Products Zeist B.V.

SOURCE: PCT Int. Appl., 75 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|----------|------------------|----------|
| WO 2000050462 | A1 | 20000831 | WO 2000-EP1538 | 20000224 |
| W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG | | | | |
| DE 19953590 | A1 | 20010517 | DE 1999-19953590 | 19991108 |
| EP 1155040 | A1 | 20011121 | EP 2000-907622 | 20000224 |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO | | | | |
| BR 2000008378 | A | 20020219 | BR 2000-8378 | 20000224 |
| JP 2002537503 | T2 | 20021105 | JP 2000-601040 | 20000224 |
| US 2002098317 | A1 | 20020725 | US 2001-931621 | 20010816 |

PRIORITY APPLN. INFO.:

EP 1999-200537 A 19990224

DE 1999-19953590 A 19991108

WO 2000-EP1538 W 20000224

AB A cellulose-contg. fibrous material is prepd. by oxidizing hydroxy groups at the C(6) of glucose units of cellulose into aldehyde and/or carboxy groups, and used to prep. paper or nonwoven products, esp. tissue products. The paper or nonwoven products display excellent strength properties. Thus, bleached hardwood sulfite pulp was treated for 60 min under acidic conditions with 4-hydroxy-TEMPO (1.00 g/50 g dry fibrous material) using 5% of 13% NaOCl as a primary oxidizing agent, and used to prep. test sheets (basis wt. 80 g/m²) having wt. 2.56 g, breaking strength 23.94 (dry) and 4.687 N/15 mm (wet), tear length 1980.1 (dry) and 387.7 m (wet), and rel. wet strength 19.6%, compared with 3.04, 18.48, 0.151, 1285.7, 10.5, and 0.8, resp., for a nonoxidized pulp.

IC ICM C08B015-02

ICS C08B015-04; D21H011-20

CC 43-7 (Cellulose, Lignin, Paper, and Other Wood Products)

ST cellulose **oxidn** aldehydocellulose carboxycellulose paper strength; sodium hypochlorite TEMPO **oxidn** cellulose; piperidinyloxy sodium hypochlorite **oxidn** cellulose

IT Household furnishings

(bedding; **oxidized** cellulose-contg. fibrous materials, prepn. thereof and products therefrom)

IT Cellulose pulp

(kraft; **oxidized** cellulose-contg. fibrous materials, prepn. thereof and products therefrom)

IT **Oxidizing** agents

(metal-contg.; **oxidized** cellulose-contg. fibrous materials, prepn. thereof and products therefrom)

IT Clothing

Nonwoven fabrics

(**oxidized** cellulose-contg. fibrous materials, prepn. thereof and products therefrom)

IT Hypohalites

Peroxy acids

RL: RCT (Reactant); RACT (Reactant or reagent)

(**oxidized** cellulose-contg. fibrous materials, prepn. thereof and products therefrom)

IT Cellulose pulp

(sulfite; **oxidized** cellulose-contg. fibrous materials, prepn. thereof and products therefrom)

IT Paper

(tissue, facial; **oxidized** cellulose-contg. fibrous materials, prepn. thereof and products therefrom)

IT Paper

(tissue; **oxidized** cellulose-contg. fibrous materials, prepn. thereof and products therefrom)

IT Paper

(towels; **oxidized** cellulose-contg. fibrous materials, prepn. thereof and products therefrom)

IT Medical goods

(wipes; **oxidized** cellulose-contg. fibrous materials, prepn. thereof and products therefrom)

IT Household furnishings

(wiping cloths; **oxidized** cellulose-contg. fibrous materials, prepn. thereof and products therefrom)

IT 9004-34-6DP, Cellulose, **oxidized**, preparation

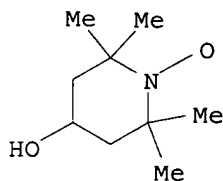
RL: IMF (Industrial manufacture); PREP (Preparation)

(contg. aldehyde and/or carboxyl groups; **oxidized** cellulose-contg. fibrous materials, prepn. thereof and products

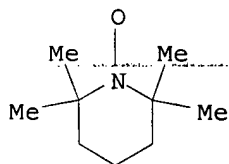
therefrom)
 IT 39301-50-3P, 6-Aldehydocellulose
 RL: IMF (Industrial manufacture); PREP (Preparation)
 (oxidized cellulose-contg. fibrous materials, prepn. thereof
 and products therefrom)
 IT 2226-96-2, 4-Hydroxy-TEMPO 2564-83-2, TEMPO 9003-99-0,
 Peroxidase 14691-88-4, 4-Amino-TEMPO 14691-89-5,
 4-Acetamido-TEMPO
 RL: PEP (Physical, engineering or chemical process); PROC (Process)
 (oxidized cellulose-contg. fibrous materials, prepn. thereof
 and products therefrom)
 IT 7681-52-9, Sodium hypochlorite 10028-15-6, Ozone, reactions
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (oxidized cellulose-contg. fibrous materials, prepn. thereof
 and products therefrom)
 IT 9004-34-6DP, Cellulose, oxidized, preparation
 RL: IMF (Industrial manufacture); PREP (Preparation)
 (contg. aldehyde and/or carboxyl groups; oxidized
 cellulose-contg. fibrous materials, prepn. thereof and products
 therefrom)
 RN 9004-34-6 HCAPLUS
 CN Cellulose (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

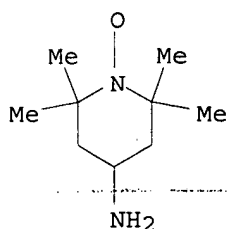
IT 2226-96-2, 4-Hydroxy-TEMPO 2564-83-2, TEMPO
 14691-88-4, 4-Amino-TEMPO 14691-89-5, 4-Acetamido-TEMPO
 RL: PEP (Physical, engineering or chemical process); PROC (Process)
 (oxidized cellulose-contg. fibrous materials, prepn. thereof
 and products therefrom)
 RN 2226-96-2 HCAPLUS
 CN 1-Piperidinyloxy, 4-hydroxy-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



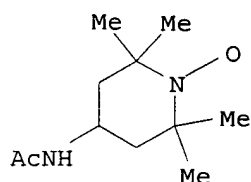
RN 2564-83-2 HCAPLUS
 CN 1-Piperidinyloxy, 2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



RN 14691-88-4 HCAPLUS
 CN 1-Piperidinyloxy, 4-amino-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



RN 14691-89-5 HCAPLUS
 CN 1-Piperidinyloxy, 4-(acetylamino)-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L20 ANSWER 23 OF 35 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2000:608301 HCAPLUS

DOCUMENT NUMBER: 134:5102

TITLE: Regioselective Oxidation of Hydroxyl Groups of Sugar and Its Derivatives Using Silver Catalysts Mediated by TEMPO and Peroxodisulfate in Water
 AUTHOR(S): Kochkar, H.; Lassalle, L.; Morawietz, M.; Holderich, W. F.

CORPORATE SOURCE: Department of Chemical Technology and Heterogeneous Catalysis, RWTH-Aachen, University of Technology, Aachen, 52074, Germany

SOURCE: Journal of Catalysis (2000), 194(2), 343-351
 CODEN: JCTLA5; ISSN: 0021-9517

PUBLISHER: Academic Press

DOCUMENT TYPE: Journal

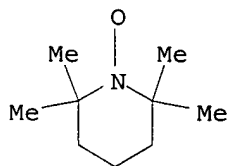
LANGUAGE: English

OTHER SOURCE(S): CASREACT 134:5102

AB Primary hydroxyl groups were oxidized regioselectively to carboxylic acid using org. nitrosonium salts generated on supported silver catalysts, which promote disproportionation of 2,2,6,6-tetramethylpiperidiny-1-oxy (TEMPO) in aq. soln. The oxidn. reactions were performed at pH 9.5 in a batch reactor at room temperture using heterogeneous silver catalysts and peroxides as primary co-oxidants; e.g., 99 mol% selectivity to methyl-.alpha.-D-glucopyrasiduronic acid was obtained at 90% conversion of the pyranoside using a silver carbonate-celite catalyst. The efficiency of the system was increased by adding carbonates to the silver catalyst. This result is explained by the increase of the electron charge deficiency on silver in the presence of carbonate, which accelerates the nucleophilic attack of hydroxyls and/or TEMPO. In the case of the Ag-Al2O3 catalyst, this result was proved by temp.-programmed desorption measurements using ammonia. With primary/secondary polyols, the selectivity for the primary hydroxyl groups is high. In addn., primary hydroxyl groups, as in the

case of pyranosides, were oxidized more selectively than those of the furanosides. The obsd. regioselectivity is due to the sterical hindrance caused by the four Me groups in TEMPO. (c) 2000 Academic Press.

- CC 33-8 (Carbohydrates)
- ST uronate prepn regioselective **oxidn** glycoside silver catalyst
TEMPO; regioselective **oxidn** alc glycoside silver catalyst TEMPO
peroxodisulfate
- IT **Oxidation catalysts**
(regioselective **oxidn**. of hydroxyl groups of sugar and its
derivs. using silver catalysts mediated by TEMPO and peroxodisulfate in
water)
- IT Zeolite MCM-41
RL: CAT (Catalyst use); USES (Uses)
(regioselective **oxidn**. of hydroxyl groups of sugar and its
derivs. using silver catalysts mediated by TEMPO and peroxodisulfate in
water)
- IT **Oxidation**
(regioselective; regioselective **oxidn**. of hydroxyl groups of
sugar and its derivs. using silver catalysts mediated by TEMPO and
peroxodisulfate in water)
- IT 1301-96-8, Silver(II) **oxide** 2564-83-2, TEMPO
12784-38-2 15092-81-6, Peroxodisulfate 20667-12-3, Silver(I)
oxide
RL: CAT (Catalyst use); USES (Uses)
(regioselective **oxidn**. of hydroxyl groups of sugar and its
derivs. using silver catalysts mediated by TEMPO and peroxodisulfate in
water)
- IT ~~57-50-1, Saccharose, reactions~~ 57-55-6, 1,2-Propanediol, reactions
97-30-3 7727-54-0 9005-25-8, Starch, reactions 10102-44-0, Nitrogen
dioxide, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(regioselective **oxidn**. of hydroxyl groups of sugar and its
derivs. using silver catalysts mediated by TEMPO and peroxodisulfate in
water)
- IT 50-21-5P, preparation 64-18-6P, Formic acid, preparation 79-14-1P,
Glycolic acid, preparation 80-69-3P, Tartronic acid 5155-45-3P
9005-25-8DP, Starch, **oxidized**, preparation
109263-83-4P
RL: SPN (Synthetic preparation); PREP (Preparation)
(regioselective **oxidn**. of hydroxyl groups of sugar and its
derivs. using silver catalysts mediated by TEMPO and peroxodisulfate in
water)
- IT 2564-83-2, TEMPO
RL: CAT (Catalyst use); USES (Uses)
(regioselective **oxidn**. of hydroxyl groups of sugar and its
derivs. using silver catalysts mediated by TEMPO and peroxodisulfate in
water)
- RN 2564-83-2 HCAPLUS
- CN 1-Piperidinyloxy, 2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



- IT 9005-25-8DP, Starch, **oxidized**, preparation

RL: SPN (Synthetic preparation); PREP (Preparation)
 (regioselective **oxidn.** of hydroxyl groups of sugar and its
 derivs. using silver catalysts mediated by TEMPO and peroxodisulfate in
 water)

RN 9005-25-8 HCAPLUS

CN Starch (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

REFERENCE COUNT: 31 THERE ARE 31 CITED REFERENCES AVAILABLE FOR THIS
 RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L20 ANSWER 24 OF 35 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2000:568278 HCAPLUS

DOCUMENT NUMBER: 133:310091

TITLE: Regioselective **oxidation** of primary hydroxyl
 groups of sugar and its derivatives using a new
 catalytic system mediated by TEMPO

AUTHOR(S): Kochkar, H.; Morawietz, M.; Holderich, W. F.

CORPORATE SOURCE: Departement of Chemical Technology and Heterogeneous
 Catalysis, University of Technology, Aachen, 52074,
 Germany

SOURCE: Studies in Surface Science and Catalysis (2000),
 130A(International Congress on Catalysis, 2000, Pt.
 A), 545-550

CODEN: SSCTDM; ISSN: 0167-2991

PUBLISHER: Elsevier Science B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 133:310091

AB Primary hydroxyl groups were oxidized regioselectively using org.
 oxoammonium salts generated on supported silver catalysts, which promote
 disproportionation of 2,2,6,6-tetramethylpiperidiny-1-oxy (TEMPO) in aq.
 soln. The oxidn. reactions were performed at pH 9.5 in a batch reactor at
 RT using heterogeneous silver catalysts and peroxides as primary
 co-oxidants. 99 Mol.% selectivity to Me .alpha.-D-glucopyranosiduronic
 acid was obtained at 90 % conversion of the pyranoside over a
 silver-celite catalyst. The activity was increased by adding carbonates
 to the silver catalysts. This result can be explained by the increase of
 the electron charge deficiency on silver in presence of carbonate, which
 accelerates the nucleophilic attack of TEMPO and/or hydroxyl groups. This
 result was proved using TPD of ammonia in the case of Ag-Al₂O₃ catalyst.
 The obsd. regioselectivity is due to the steric hindrance caused by the
 four Me groups in TEMPO.

CC 33-8 (Carbohydrates)

ST regioselective **oxidn** glucopyranoside TEMPO silver catalyst
 glucopyranosiduronate prepn

IT Zeolites (synthetic), preparation

RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP (Preparation);
 USES (Uses)

(Ag, sodium; regioselective **oxidn.** of primary hydroxyl groups
 of sugar using a silver catalytic system mediated by TEMPO)

IT **Oxidation** catalysts

(regioselective **oxidn.** of primary hydroxyl groups of sugar
 using a silver catalytic system mediated by TEMPO)

IT Uronic acids

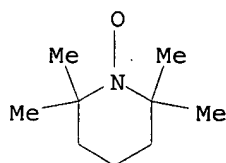
RL: SPN (Synthetic preparation); PREP (Preparation)

(regioselective **oxidn.** of primary hydroxyl groups of sugar
 using a silver catalytic system mediated by TEMPO)

IT **Oxidation**

(regioselective; regioselective **oxidn.** of primary hydroxyl

- groups of sugar using a silver catalytic system mediated by TEMPO)
- IT 2564-83-2, TEMPO
RL: CAT (Catalyst use); USES (Uses)
(regioselective oxidn. of primary hydroxyl groups of sugar using a silver catalytic system mediated by TEMPO)
- IT 1344-28-1DP, Aluminum oxide, silver co-catalyst 7440-22-4DP, Silver, aluminum phosphate and aluminum oxide co-catalyst, preparation 7784-30-7DP, Aluminum phosphate, silver co-catalyst
RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(regioselective oxidn. of primary hydroxyl groups of sugar using a silver catalytic system mediated by TEMPO)
- IT 57-50-1, Saccharose, reactions 57-55-6, 1,2-Propanediol, reactions 97-30-3, Methyl .alpha.-D-glucopyranoside 7727-54-0 9005-25-8, Starch, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(regioselective oxidn. of primary hydroxyl groups of sugar using a silver catalytic system mediated by TEMPO)
- IT 50-21-5P, 2-Hydroxypropanoic acid, preparation 5155-45-3P, Methyl .alpha.-D-glucopyranosiduronic acid 9005-25-8DP, Starch, carboxylic acid derivs., preparation
RL: SPN (Synthetic preparation); PREP (Preparation)
(regioselective oxidn. of primary hydroxyl groups of sugar using a silver catalytic system mediated by TEMPO)
- IT 2564-83-2, TEMPO
RL: CAT (Catalyst use); USES (Uses)
(regioselective oxidn. of primary hydroxyl groups of sugar using a silver catalytic system mediated by TEMPO)
- RN 2564-83-2 HCAPLUS
CN 1-Piperidinyloxy, 2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



- IT 9005-25-8DP, Starch, carboxylic acid derivs., preparation
RL: SPN (Synthetic preparation); PREP (Preparation)
(regioselective oxidn. of primary hydroxyl groups of sugar using a silver catalytic system mediated by TEMPO)
- RN 9005-25-8 HCAPLUS
CN Starch (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

REFERENCE COUNT: 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L20 ANSWER 25 OF 35 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1999:405953 HCAPLUS

DOCUMENT NUMBER: 131:185164

TITLE: The selective catalytic oxidation of terminal alcohols: a novel four-component system with MTO as catalyst

AUTHOR(S): Herrmann, Wolfgang A.; Zoller, Jochen P.; Fischer, Richard W.

CORPORATE SOURCE: Anorganisch-Chemisches Institut der Technischen

SOURCE: Universitat Munchen, Garching, D-85747, Germany
 Journal of Organometallic Chemistry (1999), 579(1-2),
 404-407
 CODEN: JORCAI; ISSN: 0022-328X
 PUBLISHER: Elsevier Science S.A.
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 OTHER SOURCE(S): CASREACT 131:185164

AB A four-component system {H₂O₂, MTO [methyltrioxorhenium(VII)], HBr, TEMPO} in acetic acid catalyzes the selective oxidn. of terminal alcs. to the corresponding aldehydes with excellent selectivity and yield. The system allows the oxidn. of alcs. with hydrogen peroxide as oxidants either selectively to aldehydes or to the corresponding acids, depending on the reaction parameters. The new technique is esp. applicable to the oxidn. of carbohydrates.

CC 33-5 (Carbohydrates)
 Section cross-reference(s): 44

ST aldehyde prepn alc methyltrioxorhenium TEMPO catalytic oxidn;
 methyltrioxorhenium TEMPO catalytic oxidn starch polysaccharide

IT Oxidation catalysts
 (selective catalytic oxidn. of terminal alcs. a novel
 four-component system with methyltrioxorhenium(III) as catalyst)

IT Alcohols, reactions
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (selective catalytic oxidn. of terminal alcs. a novel
 four-component system with methyltrioxorhenium(III) as catalyst)

IT Polysaccharides, preparation
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
 (selective catalytic oxidn. of terminal alcs. a novel
 four-component system with methyltrioxorhenium(III) as catalyst)

IT Aldehydes, preparation
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (selective catalytic oxidn. of terminal alcs. a novel
 four-component system with methyltrioxorhenium(III) as catalyst)

IT 9005-25-8, Starch, reactions
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (potato; selective catalytic oxidn. of terminal alcs. a novel
 four-component system with methyltrioxorhenium(III) as catalyst)

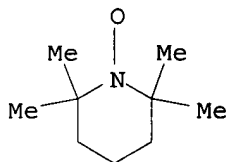
IT 65-85-0P, Benzoic acid, preparation
 RL: BYP (Byproduct); PREP (Preparation)
 (selective catalytic oxidn. of terminal alcs. a novel
 four-component system with methyltrioxorhenium(III) as catalyst)

IT 2564-83-2, Tempo 10035-10-6, Hydrogen bromide, uses
 70197-13-6, Methylrhenium trioxide
 RL: CAT (Catalyst use); USES (Uses)
 (selective catalytic oxidn. of terminal alcs. a novel
 four-component system with methyltrioxorhenium(III) as catalyst)

IT 100-51-6, Benzyl alcohol, reactions 536-60-7, 4-IsopropylBenzyl alcohol
 7722-84-1, Hydrogen peroxide, reactions 9005-82-7, Amylose 9037-22-3, Amylopectin
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (selective catalytic oxidn. of terminal alcs. a novel
 four-component system with methyltrioxorhenium(III) as catalyst)

IT 100-52-7P, Benzaldehyde, preparation 122-03-2P, 4-IsopropylBenzaldehyde
 9005-25-8DP, Starch, partially oxidized carboxylic
 acids, preparation
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (selective catalytic oxidn. of terminal alcs. a novel
 four-component system with methyltrioxorhenium(III) as catalyst)

IT 2564-83-2, Tempo
 RL: CAT (Catalyst use); USES (Uses)
 (selective catalytic oxidn. of terminal alcs. a novel
 four-component system with methyltrioxorhenium(III) as catalyst)
 RN 2564-83-2 HCAPLUS
 CN 1-Piperidinyloxy, 2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



IT 9005-25-8DP, Starch, partially oxidized carboxylic
 acids, preparation
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (selective catalytic oxidn. of terminal alcs. a novel
 four-component system with methyltrioxorhenium(III) as catalyst)
 RN 9005-25-8 HCAPLUS
 CN Starch (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

REFERENCE COUNT: 22 THERE ARE 22 CITED REFERENCES AVAILABLE FOR THIS
 RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L20 ANSWER 26 OF 35 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1999:311320 HCAPLUS

DOCUMENT NUMBER: 130:324399

TITLE: Method of producing oxidized starch

INVENTOR(S): Viikari, Liisa; Niku-Paavola, Marja-Leena; Buchert,
 Johanna; Forssell, Pirkko; Teleman, Anita; Kruus,
 Kristiina

PATENT ASSIGNEE(S): Valtion Teknillinen Tutkimuskeskus, Finland

SOURCE: PCT Int. Appl., 14 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: Finnish

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|----------|-----------------|----------|
| WO 9923240 | A1 | 19990514 | WO 1998-FI860 | 19981104 |
| W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, HR, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG | | | | |
| FI 9704138 | A | 19990505 | FI 1997-4138 | 19971104 |
| AU 9910350 | A1 | 19990524 | AU 1999-10350 | 19981104 |
| PRIORITY APPLN. INFO.: | | | FI 1997-4138 | 19971104 |
| | | | WO 1998-FI860 | 19981104 |

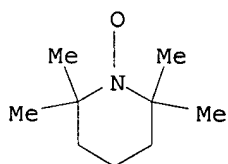
AB The invention concerns a method for producing oxidized starch. According
 to the method, the starting material contg. starch is contacted with a

reagent producing oxoammonium ion, in particular 2,2,6,6,-tetramethylpiperidin-1-oxyl, in the presence of an oxidizing agent. According to the invention, an oxidative enzyme, such as laccase, is used as the oxidizing agent. By using laccase as the oxidizing agent is achieved quite selective oxidn. while avoiding the halide-contg. reagents that are considered harmful to the environment.

IC ICM C12P019-04
ICS C08B031-18
CC 16-1 (Fermentation and Bioindustrial Chemistry)
Section cross-reference(s): 33
ST starch oxidn laccase tetramethylpiperidinoxyl
IT 9005-25-8DP, Starch, oxidized, preparation
RL: BMF (Bioindustrial manufacture); BPN (Biosynthetic preparation); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(producing oxidized starch)
IT 80498-15-3, Laccase
RL: CAT (Catalyst use); USES (Uses)
(producing oxidized starch)
IT 2564-83-2, 2,2,6,6,-Tetramethylpiperidin-1-oxyl
RL: RCT (Reactant); RACT (Reactant or reagent)
(producing oxidized starch)
IT 9005-25-8DP, Starch, oxidized, preparation
RL: BMF (Bioindustrial manufacture); BPN (Biosynthetic preparation); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(producing oxidized starch)
RN 9005-25-8 HCAPLUS
CN Starch (8CI, 9CI) (CA INDEX NAME).

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

IT 2564-83-2, 2,2,6,6,-Tetramethylpiperidin-1-oxyl
RL: RCT (Reactant); RACT (Reactant or reagent)
(producing oxidized starch)
RN 2564-83-2 HCAPLUS
CN 1-Piperidinyloxy, 2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L20 ANSWER 27 OF 35 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1999:238569 HCAPLUS
DOCUMENT NUMBER: 130:298257
TITLE: Manufacture of hypohalite-oxidized starches and their use
INVENTOR(S): Feuer, Bernice; Haack, Karl-Josef
PATENT ASSIGNEE(S): Hoechst A.-G., Germany
SOURCE: Ger., 8 pp.
CODEN: GWXXAW
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|------------------|----------|
| DE 19746805 | C1 | 19990408 | DE 1997-19746805 | 19971023 |
| PRIORITY APPLN. INFO.: | | DE 1997-19746805 19971023 | | |
| AB | The title starches, useful as seed or fertilizer carriers, soil improvers, pharmaceutical components, adhesives, binders and esp. superabsorbents, are manufd. by oxidn. of native starches with NaOCl in the presence of 2,2,6,6-tetramethyl-1-piperidinyloxy and NaBr at pH <9, specifically at pH 8-8.5. The resulting starches have increased absorption capacity, esp. at lower degrees of oxidn., and they form gels when dissolved in H2O. | | | |
| IC | ICM C08B031-18 | | | |
| | ICS C09K017-32; B01J020-24; C05G003-04; A61K047-36; A01C001-04; A01C001-06; C09J103-10; C08L003-10 | | | |
| CC | 44-6 (Industrial Carbohydrates) | | | |
| ST | starch hypohalite oxidized manuf; hypochlorite oxidn starch sodium bromide tetramethylpiperidinyloxy radical catalyst; superabsorbent manuf starch oxidn alky control | | | |
| IT | Alkaline earth halides | | | |
| | RL: CAT (Catalyst use); USES (Uses) (bromides; manuf. of starches oxidized with hypohalites or halogens in presence of di-tert-alkylnitroxyl radicals and) | | | |
| IT | Nitroxides | | | |
| | RL: CAT (Catalyst use); USES (Uses) (di-tert-alkyl-; manuf. of starches oxidized with hypohalites or halogens in presence of sodium bromide and tetramethylpiperidinyloxy) | | | |
| IT | Oxidation | | | |
| | Oxidation catalysts (manuf. of hypochlorite- oxidized starches in presence of sodium bromide and tetramethylpiperidinyloxy) | | | |
| IT | Superabsorbents (manuf. of hypochlorite- oxidized starches in presence of sodium bromide and tetramethylpiperidinyloxy for use as) | | | |
| IT | Drugs (manuf. of oxidized starches as pharmaceutical component) | | | |
| IT | Adhesives | | | |
| | Binders (manuf. of oxidized starches for use as) | | | |
| IT | Fertilizers | | | |
| | RL: MSC (Miscellaneous) (manuf. of oxidized starches for use as fertilizer carriers) | | | |
| IT | Seed (manuf. of oxidized starches for use as seed carriers) | | | |
| IT | Soil reclamation (manuf. of oxidized starches for use in) | | | |
| IT | Alkali metal bromides | | | |
| | RL: CAT (Catalyst use); USES (Uses) (manuf. of starches oxidized with hypohalites or halogens in presence of di-tert-alkylnitroxyl radicals and) | | | |
| IT | Halogens | | | |
| | Hypohalites RL: NUU (Other use, unclassified); USES (Uses) (manuf. of starches oxidized with hypohalites or halogens in presence of sodium bromide and tetramethylpiperidinyloxy) | | | |
| IT | 2564-83-2, TEMPO | | | |
| | RL: CAT (Catalyst use); USES (Uses) (manuf. of hypochlorite- oxidized starches in presence of sodium bromide and) | | | |
| IT | 9005-25-8DP, Starch, oxidized , preparation | | | |

RL: IMF (Industrial manufacture); PREP (Preparation)
 (manuf. of hypochlorite-oxidized starches in presence of
 sodium bromide and tetramethylpiperidinyloxy)

IT 7647-15-6, Sodium bromide, uses
 RL: CAT (Catalyst use); USES (Uses)
 (manuf. of hypochlorite-oxidized starches in presence of
 tetramethylpiperidinyloxy and)

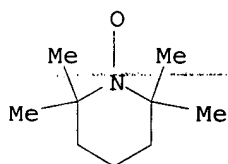
IT 7681-52-9, Sodium hypochlorite
 RL: NUU (Other use, unclassified); USES (Uses)
 (manuf. of hypochlorite-oxidized starches in presence of
 tetramethylpiperidinyloxy and)

IT 9005-25-8, Starch, reactions
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (oxidn.; manuf. of hypochlorite-oxidized starches
 in presence of sodium bromide and tetramethylpiperidinyloxy)

IT 2564-83-2, TEMPO
 RL: CAT (Catalyst use); USES (Uses)
 (manuf. of hypochlorite-oxidized starches in presence of
 sodium bromide and)

RN 2564-83-2 HCAPLUS

CN 1-Piperidinyloxy, 2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



IT 9005-25-8DP, Starch, oxidized, preparation
 RL: IMF (Industrial manufacture); PREP (Preparation)
 (manuf. of hypochlorite-oxidized starches in presence of
 sodium bromide and tetramethylpiperidinyloxy)

RN 9005-25-8 HCAPLUS

CN Starch (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

L20 ANSWER 28 OF 35 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1999:49253 HCAPLUS

DOCUMENT NUMBER: 130:97117

TITLE: Manufacture of tricarboxy starch

INVENTOR(S): Shinpo, Masafumi; Sakaiya, Hisashi; Sumitani, Makoto

PATENT ASSIGNEE(S): Mitsubishi Gas Chemical Co., Ltd., Japan

SOURCE: Jpn: Kokai Tokkyo Koho; 4 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|------------------------|------|----------|-----------------|----------|
| JP 11012301 | A2 | 19990119 | JP 1997-164284 | 19970620 |
| PRIORITY APPLN. INFO.: | | | JP 1997-164284 | 19970620 |

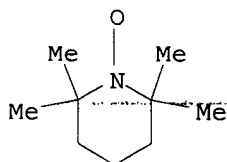
AB Title materials, useful for scale inhibitors, pigment dispersants, sizing agents, concrete admixt., and detergent builders, etc., are manufd. by tow-step oxidn. of starch with hypohalites in the presence of nitroxyl

comps. and then with peroxides in the presence of catalysts. Thus, corn starch was oxidized with NaOCl in the presence of TEMPO and further oxidized with H₂O₂ in the presence of K₅PTi₂W10040 to give tricarboxy starch having CO₂H content .apprx.100% at 6 position and 31% at 2- and 3-position of glycopyranose units.

IC ICM C08B031-18
 CC 44-6 (Industrial Carbohydrates)
 ST starch **oxidn** tricarboxy sodium hypochlorite TEMPO; nitroxyl
 compd **oxidn** tricarboxy starch manuf
 IT **Oxidation**
 (manuf. of tricarboxy starch by **oxidn**. with hypohalites,
 nitroxy compds., and peroxides)
 IT Hypohalites
 Peroxides, uses
 RL: NUU (Other use, unclassified); USES (Uses)
 (manuf. of tricarboxy starch by **oxidn**. with hypohalites,
 nitroxy compds., and peroxides)
 IT 9005-25-8DP, Starch, tricarboxy derivs., preparation
 RL: IMF (Industrial manufacture); PREP (Preparation)
 (manuf. of tricarboxy starch by **oxidn**. with hypohalites,
 nitroxy compds., and peroxides)
 IT 2564-83-2, TEMPO 7681-52-9, Sodium hypochlorite 7722-84-1,
 Hydrogen peroxide, uses
 RL: NUU (Other use, unclassified); USES (Uses)
 (manuf. of tricarboxy starch by **oxidn**. with hypohalites,
 nitroxy compds., and peroxides)
 IT 9005-25-8DP, Starch, tricarboxy derivs., preparation
 RL: IMF (Industrial manufacture); PREP (Preparation)
 (manuf. of tricarboxy starch by **oxidn**. with hypohalites,
 nitroxy compds., and peroxides)
 RN 9005-25-8 HCAPLUS
 CN Starch (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

IT 2564-83-2, TEMPO
 RL: NUU (Other use, unclassified); USES (Uses)
 (manuf. of tricarboxy starch by **oxidn**. with hypohalites,
 nitroxy compds., and peroxides)
 RN 2564-83-2 HCAPLUS
 CN 1-Piperidinyloxy, 2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)

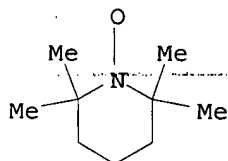


L20 ANSWER 29 OF 35 HCAPLUS COPYRIGHT 2003 ACS
 ACCESSION NUMBER: 1998:814765 HCAPLUS
 DOCUMENT NUMBER: 130:197985
 TITLE: Application of stable nitroxyl radical reagents to
 cellulose modifications
 AUTHOR(S): Isogai Akira
 CORPORATE SOURCE: Graduate School of Agricultural and Life Science,
 University of Tokyo, Bunkyo-ku, Yayoi, 113-8657, Japan
 SOURCE: Cellulose Communications (1998), 5(3), 136-141

CODEN: CCOMFD; ISSN: 1342-730X

PUBLISHER: Serurosu Gakkai
 DOCUMENT TYPE: Journal; General Review
 LANGUAGE: Japanese

- AB A review with 25 refs. Recent reports concerning TEMPO-mediated oxidn. of alc. compds. were introduced briefly, and application of TEMPO-NaBr-NaClO oxidn. systems under aq. conditions to cellulosic materials was reviewed on the basis of the results obtained in our lab. When mercerized and regenerated celluloses were used as starting materials, water-sol. oxidized products were quant. obtained by the TEMPO-NaBr-NaClO oxidn. at pH 10-11. ¹³C-NMR anal. showed that the oxidized products had almost pure structures of .beta.-1,4-linked glucuronic acid sodium salt, i.e. cellouronic acid Na salt. On the other hand when native celluloses were oxidized, the products did not become water-sol., owing to low degree of oxidn. Possibilities to utilize cellouronic acid and partly oxidized pulp fibers by the TEMPO-NaBr-NaClO system are discussed on the basis of their characteristics.
- CC 43-0 (Cellulose, Lignin, Paper, and Other Wood Products)
 ST review cellulose oxidn nitroxyl radical reagent
 IT Oxidation
 Oxidizing agents
 (application of stable nitroxyl radical reagents to cellulose modifications)
- IT 7647-15-6, Sodium bromide (NaBr), uses 7681-52-9, Sodium hypochlorite
 RL: NUU (Other use, unclassified); USES (Uses)
 (application of TEMPO-NaBr-NaClO oxidn. systems to cellulose modifications)
- IT 2564-83-2, TEMPO
 RL: NUU (Other use, unclassified); USES (Uses)
 (application of stable nitroxyl radical reagents to cellulose modifications)
- IT 9004-34-6DP, Cellulose, oxidized, preparation
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (application of stable nitroxyl radical reagents to cellulose modifications)
- IT 2564-83-2, TEMPO
 RL: NUU (Other use, unclassified); USES (Uses)
 (application of stable nitroxyl radical reagents to cellulose modifications)
- RN 2564-83-2 HCAPLUS
 CN 1-Piperidinyloxy, 2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



- IT 9004-34-6DP, Cellulose, oxidized, preparation
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (application of stable nitroxyl radical reagents to cellulose modifications)
- RN 9004-34-6 HCAPLUS
 CN Cellulose (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

L20 ANSWER 30 OF 35 HCAPLUS COPYRIGHT 2003 ACS
 ACCESSION NUMBER: 1998:614301 HCAPLUS
 DOCUMENT NUMBER: 129:303867
 TITLE: Cellulose derivatives having glucuronic acid residues
 and their manufacture
 INVENTOR(S): Isogai, Akira
 PATENT ASSIGNEE(S): Daicel Chemical Industries, Ltd., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 8 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|------------------------|------|----------|-----------------|----------|
| JP 10251302 | A2 | 19980922 | JP 1997-57379 | 19970312 |
| PRIORITY APPLN. INFO.: | | | JP 1997-57379 | 19970312 |

OTHER SOURCE(S): MARPAT 129:303867

GI For diagram(s), see printed CA Issue.

AB Title derivs., whose primary OH in glucose residue is oxidized to form glucuronic acid residue, are manufd. from alkali-treated or regenerated cellulose by oxidn. using oxidizing agents in the presence of N-oxyl compds. I (A = nonarom. 5- or 6-member heterocycle; A may contain hetero atom. other than N). The derivs., having high hydrophilicity or water soly., can be manufd. in mild conditions. Thus, 1 g bleached pulp was suspended in 100 g 17.5% aq. NaOH at room temp. for 2 h and neutralized to give alkali-treated cellulose, 0.5 g (bone dry wt.) of which was dispersed in 100 mL aq. soln. contg. 0.02 g TEMPO and 0.24 g NaBr and oxidized by 4.6 g NaOCl (Anriformin) at pH 10-11 and room temp. for 50 min to give title deriv. The aq. soln. contg. 1% of the derivs. looked completely transparent.

IC ICM C08B015-04
ICS C08B001-00

CC 43-3 (Cellulose, Lignin, Paper, and Other Wood Products)

ST cellulose deriv glucuronic acid residue; **oxidn** primary hydroxy cellulose; water soly hydrophilicity cellulose deriv; nitrogen **oxide** compd **oxidn** cellulose; alkali treated cellulose sodium hypochlorite **oxidn**; sodium bromide **oxidn** alkali treated cellulose; TEMPO **oxidn** cellulose water soly

IT Peroxides, uses
 RL: MOA (Modifier or additive use); USES (Uses)
 (**oxidn**. agents; **oxidn**. of alkali-treated or regenerated cellulose in the presence of N-oxyl compds. for giving hydrophilicity or water soly.)

IT Cellulose pulp
 Linters
 Oxidation
 (**oxidn**. of alkali-treated or regenerated cellulose in the presence of N-oxyl compds. for giving hydrophilicity or water soly.)

IT Rayon, reactions
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (**oxidn**. of alkali-treated or regenerated cellulose in the presence of N-oxyl compds. for giving hydrophilicity or water soly.)

IT 9004-34-6DP, Cellulose, **oxidized**, preparation
 RL: IMF (Industrial manufacture); PREP (Preparation)
 (contg. glucuronic acid residue; **oxidn**. of alkali-treated or regenerated cellulose in the presence of N-oxyl compds. for giving hydrophilicity or water soly.)

IT 7647-15-6, Sodium bromide, uses

RL: CAT (Catalyst use); USES (Uses)
 (in **oxidn.** of alkali-treated or regenerated cellulose in the
 presence of N-oxyl compds. for giving hydrophilicity or water soly.)

IT 7681-52-9, Antiformin
 RL: MOA (Modifier or additive use); USES (Uses)
 (**oxidn.** agents; **oxidn.** of alkali-treated or
 regenerated cellulose in the presence of N-oxyl compds. for giving
 hydrophilicity or water soly.)

IT 2564-83-2, TEMPO
 RL: CAT (Catalyst use); USES (Uses)
 (**oxidn.** of alkali-treated or regenerated cellulose in the
 presence of N-oxyl compds. for giving hydrophilicity or water soly.)

IT 9004-34-6, Cellulose, reactions
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (**oxidn.** of alkali-treated or regenerated cellulose in the
 presence of N-oxyl compds. for giving hydrophilicity or water soly.)

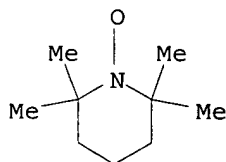
IT 9004-34-6DP, Cellulose, **oxidized**, preparation
 RL: IMF (Industrial manufacture); PREP (Preparation)
 (contg. glucuronic acid residue; **oxidn.** of alkali-treated or
 regenerated cellulose in the presence of N-oxyl compds. for giving
 hydrophilicity or water soly.)

RN 9004-34-6 HCAPLUS
 CN Cellulose (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

IT 2564-83-2, TEMPO
 RL: CAT (Catalyst use); USES (Uses)
 (**oxidn.** of alkali-treated or regenerated cellulose in the
 presence of N-oxyl compds. for giving hydrophilicity or water soly.)

RN 2564-83-2 HCAPLUS
 CN 1-Piperidinyloxy, 2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



L20 ANSWER 31 OF 35 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1997:85181 HCAPLUS

DOCUMENT NUMBER: 126:91000

TITLE: Manufacture of **oxidized** polymeric
 carbohydrate ethers as sequestering agents

INVENTOR(S): Heeres, Andre; Bleeker, Ido Pieter; Gotlieb, Kornelis
 Fester; Van Doren, Hendrick Arend

PATENT ASSIGNEE(S): Coöperatieve Verkoop- en Productievereniging van
 Aardappelmeel en derivaten Avebe B. A., Neth.; Heeres,
 Andre; Bleeker, Ido Pieter; Gotlieb, Kornelis Fester;
 Van Doren, Hendrick Arend

SOURCE: PCT Int. Appl., 51 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

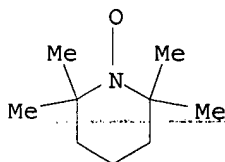
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|-----------------|----------|
| WO 9638484 | A1 | 19961205 | WO 1996-NL218 | 19960603 |
| W: AL, AM, AT, AU, AZ, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG | | | | |
| RW: KE, LS, MW, SD, SZ, UG, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA | | | | |
| NL 1000495 | C2 | 19961203 | NL 1995-1000495 | 19950602 |
| AU 9659125 | A1 | 19961218 | AU 1996-59125 | 19960603 |
| PRIORITY APPLN. INFO.: | | | NL 1995-1000495 | 19950602 |
| | | | WO 1996-NL218 | 19960603 |
| AB | The title ethers or their mixts. with a d.p. of .gtoreq.10 possess an excellent sequestering and anticrustation activity and are used as biodegradable (no data) additives in cleaning agents. The ethers are manufd. by selective oxidn. of at least a part of the primary OH groups of polymeric carbohydrate ethers with d.p. .gtoreq.10. The oxidn., e.g., of carboxymethyl or hydroxyethyl starch, CMC, etc., is carried out with NaOCl utilizing a catalytic amt. of stable nitroxide radicals, specifically 2,2,6,6,-tetramethylpiperidine-N-oxyl, and optionally, NaBr. | | | |
| IC | ICM C08B031-18 | | | |
| | ICS C08B011-20; C11D003-22 | | | |
| CC | 44-6 (Industrial Carbohydrates) | | | |
| | Section cross-reference(s): 43, 46 | | | |
| ST | carbohydrate ether oxidn sequestering agent manuf; oxidn selective carbohydrate ether sequestering agent; hypochlorite tetramethylpiperidine oxyl selective oxidn carbohydrate; piperidine tetramethyl oxyl hypochlorite oxidn carbohydrate; carboxymethyl starch selective oxidn sequestering agent; CMC selective oxidn sequestering agent manuf | | | |
| IT | Oxidation catalysts (2,2,6,6,-tetramethylpiperidine-N-oxyl and sodium bromide; manuf. of oxidized polymeric carbohydrate ethers as sequestering agents) | | | |
| IT | Detergents (liq.; manuf. of oxidized polymeric carbohydrate ethers as sequestering agents for use in) | | | |
| IT | Sequestering agents (manuf. of oxidized polymeric carbohydrate ethers as sequestering agents) | | | |
| IT | Detergents (manuf. of oxidized polymeric carbohydrate ethers as sequestering agents for use in) | | | |
| IT | Oxidation (selective; manuf. of oxidized polymeric carbohydrate ethers as sequestering agents) | | | |
| IT | Oxidizing agents (sodium hypochlorite; manuf. of oxidized polymeric carbohydrate ethers as sequestering agents) | | | |
| IT | 36562-70-6, Polyguluronic acid RL: RCT (Reactant); RACT (Reactant or reagent) (carboxymethylation and oxidn . of; manuf. of oxidized polymeric carbohydrate ethers as sequestering agents) | | | |
| IT | 3926-62-3, Sodium chloroacetate RL: RCT (Reactant); RACT (Reactant or reagent) (carboxymethylation of polyguluronic acid; manuf. of oxidized polymeric carbohydrate ethers as sequestering agents) | | | |
| IT | 75-21-8, Oxirane, reactions RL: RCT (Reactant); RACT (Reactant or reagent) (ethoxylation of polyguluronic acid; manuf. of oxidized | | | |

- polymeric carbohydrate ethers as sequestering agents)
- IT 9000-11-7DP, **oxidized** 9004-62-0DP, Hydroxyethyl cellulose, **oxidized** 9005-25-8DP, Starch, 2-nitrobutyl, **oxidized**, preparation 9005-27-0DP, Hydroxyethyl starch, **oxidized** 9005-82-7DP, Amylose, dihydroxypropyl, **oxidized** 9049-76-7DP, Hydroxypropyl starch, **oxidized** 9057-06-1DP, Carboxymethyl starch, **oxidized** 9063-39-2DP, Cyanoethyl starch, **oxidized** 36562-70-6DP, Polyguluronic acid, carboxymethyl and hydroxyethyl derivs., **oxidized**
 RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
 (manuf. of **oxidized** polymeric carbohydrate ethers as sequestering agents)
- IT 7681-52-9, Sodium hypochlorite
 RL: NUU (Other use, unclassified); USES (Uses)
 (**oxidn.** agent; manuf. of **oxidized** polymeric carbohydrate ethers as sequestering agents)
- IT 2564-83-2, 2,2,6,6,-Tetramethylpiperidine-N-oxyl 7647-15-6, Sodium bromide, uses
 RL: CAT (Catalyst use); USES (Uses)
 (**oxidn.** catalyst; manuf. of **oxidized** polymeric carbohydrate ethers as sequestering agents)
- IT 9005-25-8DP, Starch, 2-nitrobutyl, **oxidized**, preparation
 RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
 (manuf. of **oxidized** polymeric carbohydrate ethers as sequestering agents)
- RN 9005-25-8 HCAPLUS
 CN Starch (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

- IT 2564-83-2, 2,2,6,6,-Tetramethylpiperidine-N-oxyl
 RL: CAT (Catalyst use); USES (Uses)
 (**oxidn.** catalyst; manuf. of **oxidized** polymeric carbohydrate ethers as sequestering agents)
- RN 2564-83-2 HCAPLUS
 CN 1-Piperidinyloxy, 2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



L20 ANSWER 32 OF 35 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1996:558300 HCAPLUS

DOCUMENT NUMBER: 125:279042

TITLE: **Oxidation** of primary alcohol groups of naturally occurring polysaccharides with 2,2,6,6-tetramethyl-1-piperidine oxoammonium ion

AUTHOR(S): Chang, Pahn S.; Robyt, John F.

CORPORATE SOURCE: Dep. Biochem. Biophys., Iowa State Univ., Ames, IA, 50011, USA

SOURCE: Journal of Carbohydrate Chemistry (1996), 15(7), 819-830

CODEN: JCACDM; ISSN: 0732-8303

PUBLISHER: Dekker
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The primary alc. groups of ten polysaccharides, with widely different structures and water solubilities, were oxidized to carboxyl groups using 2,2,6,6-tetramethyl-1-piperidine oxoammonium ion (TEMPO; 2,2,6,6-tetramethyl-1-piperidinyloxy) at pH 10.8 and 0.degree.C. The yield and selectivity for the primary alc. group were high for all ten of the polysaccharides. The oxidn. greatly increased the water-soly. of the polysaccharides. Water-insol. polysaccharides such as amylose, cellulose, and chitin became water-sol. to the extent of approx. 10% (w/v). The water-sol. polysaccharides had their degree of soly. doubled or tripled. The specific optical rotation, viscosity, and gelling properties with calcium ion were detd. The oxidized polysaccharides are new anionic polymers with unique structures that could have application as gums, gels, and films.

CC 44-6 (Industrial Carbohydrates)

Section cross-reference(s): 33

ST oxidn piperidine oxoammonium polysaccharide; hypochlorite
piperidinyloxy oxidn starch dextran cellulose; chitosan pullulan
chitin hypochlorite piperidinyloxy oxidn

IT Kinetics of oxidation

Oxidizing agents

(chemoselective oxidn. polysaccharides with hypochlorite and tetramethylperidinyloxy)

IT Polysaccharides, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)

(chemoselective oxidn. polysaccharides with hypochlorite and tetramethylperidinyloxy)

IT Oxidation

(chemoselective, chemoselective oxidn. polysaccharides with hypochlorite and tetramethylperidinyloxy)

IT Regiochemistry

(chemoselectivity, chemoselective oxidn. polysaccharides with hypochlorite and tetramethylperidinyloxy)

IT Polysaccharides, preparation

RL: SPN (Synthetic preparation); PREP (Preparation)

(oxidized, water-sol.; chemoselective oxidn.

polysaccharides with hypochlorite and tetramethylperidinyloxy)

IT 1398-61-4, Chitin 2564-83-2, 2,2,6,6-Tetramethyl-1-piperidinyloxy 7681-52-9, Sodium hypochlorite 9004-32-4 9004-34-6, Cellulose, reactions 9004-54-0, Dextran, reactions 9005-25-8, Starch, reactions 9005-82-7, Amylose 9012-76-4, Chitosan 9037-22-3, Amylopectin 9057-02-7, Pullulan 136510-13-9, Alternan

RL: RCT (Reactant); RACT (Reactant or reagent)

(chemoselective oxidn. polysaccharides with hypochlorite and tetramethylperidinyloxy)

IT 1398-61-4DP, Chitin, oxidized 9000-11-7DP, oxidized

9004-34-6DP, Cellulose, oxidized 9004-54-0DP, Dextran,

oxidized 9005-25-8DP, Starch, oxidized

9005-82-7DP, Amylose, oxidized 9012-76-4DP, Chitosan,

oxidized 9037-22-3DP, Amylopectin, oxidized

9057-02-7DP, Pullulan, oxidized 136510-13-9DP, Alternan,

oxidized

RL: SPN (Synthetic preparation); PREP (Preparation)

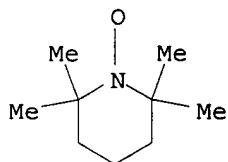
(chemoselective oxidn. polysaccharides with hypochlorite and tetramethylperidinyloxy)

IT 2564-83-2, 2,2,6,6-Tetramethyl-1-piperidinyloxy

RL: RCT (Reactant); RACT (Reactant or reagent)

(chemoselective oxidn. polysaccharides with hypochlorite and

tetramethylperidinyloxy)
 RN 2564-83-2 HCAPLUS
 CN 1-Piperidinyloxy, 2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



IT 9004-34-6DP, Cellulose, oxidized 9005-25-8DP,
 Starch, oxidized
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (chemoselective oxidn. polysaccharides with hypochlorite and
 tetramethylperidinyloxy)
 RN 9004-34-6 HCAPLUS
 CN Cellulose (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 9005-25-8 HCAPLUS
 CN Starch (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

L20 ANSWER 33 OF 35 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1995:468959 HCAPLUS

DOCUMENT NUMBER: 123:33535

TITLE: Highly selective nitrosyl radical-mediated
 oxidation of primary alcohol groups in
 water-soluble glucans

AUTHOR(S): de Nooy, Arjan E. J.; Besemer, Arie C.; van Bekkum,
 Herman

CORPORATE SOURCE: TNO Nutrition and Food Research Institute, Department
 of Biochemistry, Utrechtseweg 48, AJ Zeist, 3700,
 Neth.

SOURCE: Carbohydrate Research (1995), 269(1), 89-98
 CODEN: CRBRAT; ISSN: 0008-6215

PUBLISHER: Elsevier

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 123:33535

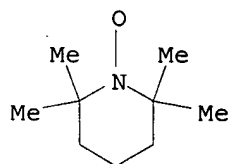
AB With catalytic amts. of 2,2,6,6-tetramethyl-1-piperidinyloxy (TEMPO) and
 hypochlorite/bromide as the regenerating oxidant in water, primary alc.
 groups in glucans and derivs. thereof were rapidly and completely
 oxidized. For pyranosides, selectivity was higher than 95% and no side
 products could be detected with 1H and 13C NMR or with high-performance
 anion-exchange chromatog. (HPAEC). The optimum pH for the reaction was
 between 10 and 11. The oxidn. was found to be first order in TEMPO and
 Br-. The oxidn. method can be applied to det. the amt. of primary alc.
 groups in water-sol. glucans; for pullulan, a proportion of 70% and for
 dextran, a proportion of 3% primary alc. groups was found.

CC 33-5 (Carbohydrates)

ST glycoside regiochem oxidn catalyst piperidinyloxy;
 polysaccharide regiochem oxidn catalyst piperidinyloxy

IT Oxidation
 Oxidation catalysts
 Regiochemistry

- (regioselective nitrosyl radical-mediated oxidn. of primary alc. groups in water-sol. glucans)
- IT Polysaccharides, preparation
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(regioselective nitrosyl radical-mediated oxidn. of primary alc. groups in water-sol. glucans)
- IT 9005-25-8, Starch, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(potato; regioselective nitrosyl radical-mediated oxidn. of primary alc. groups in water-sol. glucans)
- IT 9005-25-8DP, Starch, C-6 oxadized
RL: SPN (Synthetic preparation); PREP (Preparation)
(potato; regioselective nitrosyl radical-mediated oxidn. of primary alc. groups in water-sol. glucans)
- IT 2564-83-2, 2,2,6,6-Tetramethyl-1-piperidinyloxy
RL: CAT (Catalyst use); USES (Uses)
(regioselective nitrosyl radical-mediated oxidn. of primary alc. groups in water-sol. glucans)
- IT 97-30-3, Methyl .alpha.-D-glucopyranoside 99-20-7, .alpha.,.alpha.-Trehalose 709-50-2, Methyl .beta.-D-glucopyranoside 9005-84-9, Amylodextrin 9057-02-7, Pullulan
RL: RCT (Reactant); RACT (Reactant or reagent)
(regioselective nitrosyl radical-mediated oxidn. of primary alc. groups in water-sol. glucans)
- IT 4356-84-7P 5155-45-3P 9005-84-9DP, Amylodextrin, C-6 oxadized 9057-02-7DP, Pullulan, C-6, C-6' oxadized 72671-87-5P
RL: SPN (Synthetic preparation); PREP (Preparation)
(regioselective nitrosyl radical-mediated oxidn. of primary alc. groups in water-sol. glucans)
- IT 9005-25-8DP, Starch, C-6 oxadized
RL: SPN (Synthetic preparation); PREP (Preparation)
(potato; regioselective nitrosyl radical-mediated oxidn. of primary alc. groups in water-sol. glucans)
- RN 9005-25-8 HCAPLUS
- CN Starch (8CI, 9CI) (CA INDEX NAME)
- *** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
- IT 2564-83-2, 2,2,6,6-Tetramethyl-1-piperidinyloxy
RL: CAT (Catalyst use); USES (Uses)
(regioselective nitrosyl radical-mediated oxidn. of primary alc. groups in water-sol. glucans)
- RN 2564-83-2 HCAPLUS
- CN 1-Piperidinyloxy, 2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



L20 ANSWER 34 OF 35 HCAPLUS COPYRIGHT 2003 ACS
 ACCESSION NUMBER: 1984:105335 HCAPLUS
 DOCUMENT NUMBER: 100:105335
 TITLE: Synthesis of selectively modified cellulose derivatives via reductive amination of 2-oxo- and

3-oxycellulose intermediates

AUTHOR(S): Yalpani, Manssur; Hall, Laurance D.; Defaye, Jacques; Gadelle, Andree

CORPORATE SOURCE: Dep. Chem., Univ. British Columbia, Vancouver, BC, V6T 1W5, Can.

SOURCE: Canadian Journal of Chemistry (1984), 62(2), 260-2
CODEN: CJCHAG; ISSN: 0008-4042

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Diamagnetic and paramagnetic amino derivs. of cellulose were prepd. via the reductive amination of 2-oxy-6-O-tritylcellulose (I) and 3-oxycellulose (II) in the presence of Na cyanoborohydride. Conversion of II into a highly branched, H₂O-sol. 3-deoxycellulose deriv. was accomplished by attachment of glucosamine side chains. 3-Amino-3-deoxycellulose with substitution degree (SD) 0.3 was obtained by reductive amination of II with AcONH₄. An organometallic cellulose deriv. was prepd. by condensation of II with (p-toluidine)tricarboxylchromium; similarly, 1,10-diaza-18-crown-6 was added to I to form a crown ether deriv. of cellulose with SD 0.06.

CC 43-3 (Cellulose, Lignin, Paper, and Other Wood Products)

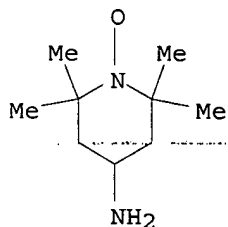
IT 3416-24-8DP, reaction products with oxycellulose **14691-88-4DP**, reaction products with oxycellulose
RL: PREP (Preparation)
(prepn. of, by reductive amination in presence of sodium borohydride)

IT 631-61-8DP, reaction products with oxycellulose **9004-34-6DP**, oxidized, amine derivs. 12247-10-8DP, reaction products with oxycellulose 23978-55-4DP, reaction products with oxycellulose
RL: PREP (Preparation)
(prepn. of, by reductive amination in presence of sodium cyanoborohydride)

IT **14691-88-4DP**, reaction products with oxycellulose
RL: PREP (Preparation)
(prepn. of, by reductive amination in presence of sodium borohydride)

RN 14691-88-4 HCAPLUS

CN 1-Piperidinyloxy, 4-amino-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



IT **9004-34-6DP**, oxidized, amine derivs.
RL: PREP (Preparation)
(prepn. of, by reductive amination in presence of sodium cyanoborohydride)

RN 9004-34-6 HCAPLUS

CN Cellulose (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

L20 ANSWER 35 OF 35 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1982:6980 HCAPLUS

DOCUMENT NUMBER: 96:6980

TITLE: Some chemical and analytical aspects of polysaccharide

modifications. I. Nitroxide spin-labeling studies of
 alginic acid, cellulose, and xanthan gum
 AUTHOR(S): Yalpani, Mansur; Hall, Laurance D.
 CORPORATE SOURCE: Dep. Chem., Univ. British Columbia, Vancouver, BC, V6T
 1Y6, Can.

SOURCE: Canadian Journal of Chemistry (1981), 59(21), 3105-19
 CODEN: CJCHAG; ISSN: 0008-4042

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Nitroxide spin labels have been employed as model reagents for evaluating
 several aspects of the synthesis of covalently modified polysaccharide
 derivs. using alginic acid, xanthan gum, and cellulose as examples.
 Modifications were accomplished both nonspecifically, by the alkylation of
 OH groups, and specifically, either by direct transformation of the
 carboxylate function of alginic acid and xanthan gum or after introduction
 of appropriate prominent functions, such as aldehydes or amines. The
 products were characterized by ESR and other spectroscopic techniques.

CC 33-5 (Carbohydrates)

Section cross-reference(s): 22

IT 9004-34-6DP, 2,2,6,6-tetramethyl-1-oxy-4-piperidinyl derivs.

79956-06-2P 79956-08-4P

RL: SPN (Synthetic preparation); PREP (Preparation)

(prepn. and nitroxide spin-labeling of)

IT 9005-32-7DP, oxidized, amine derivs. 11138-66-2DP, amide

derivs. 79956-07-3P 79956-09-5P 79956-10-8P

79956-11-9P 79956-12-0P

RL: SPN (Synthetic preparation); PREP (Preparation)

(prepn. of)

IT 2226-96-2

RL: RCT (Reactant); RACT (Reactant or reagent)

(reaction of with alginic acid)

IT 14691-88-4 36775-23-2

RL: RCT (Reactant); RACT (Reactant or reagent)

(reaction of, with alginic acid)

IT 2896-70-0

RL: RCT (Reactant); RACT (Reactant or reagent)

(reductive amination of, with alginic hydrazide deriv.)

IT 9004-34-6DP, 2,2,6,6-tetramethyl-1-oxy-4-piperidinyl derivs.

RL: SPN (Synthetic preparation); PREP (Preparation)

(prepn. and nitroxide spin-labeling of)

RN 9004-34-6 HCAPLUS

CN Cellulose (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

IT 79956-07-3P 79956-09-5P 79956-11-9P

RL: SPN (Synthetic preparation); PREP (Preparation)

(prepn. of)

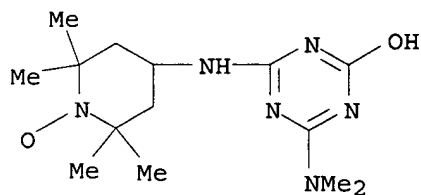
RN 79956-07-3 HCAPLUS

CN Alginic acid, 4-(dimethylamino)-6-[(2,2,6,6-tetramethyl-1-oxy-4-
 piperidinyl)amino]-1,3,5-triazin-2-yl ester (9CI) (CA INDEX NAME)

CM 1

CRN 267661-72-3

CMF C14 H25 N6 O2



CM 2

CRN 9005-32-7

CMF Unspecified

CCI PMS, MAN

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

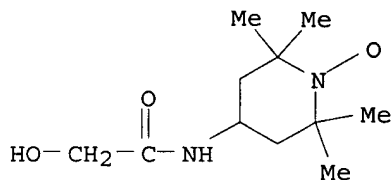
RN 79956-09-5 HCAPLUS

CN Alginic acid, 2-oxo-2-[(2,2,6,6-tetramethyl-1-oxy-4-piperidinyl)amino]ethyl ether (9CI) (CA INDEX NAME)

CM 1

CRN 173450-96-9

CMF C11 H21 N2 O3



CM 2

CRN 9005-32-7

CMF Unspecified

CCI PMS, MAN

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 79956-11-9 HCAPLUS

CN Alginic acid, 2,2,6,6-tetramethyl-1-oxy-4-piperidinyl ester (9CI) (CA INDEX NAME)

CM 1

CRN 9005-32-7

CMF Unspecified

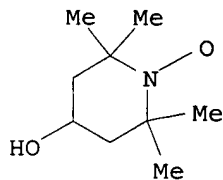
CCI PMS, MAN

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

CM 2

CRN 2226-96-2

CMF C9-H18-N-O2

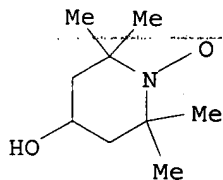


IT 2226-96-2

RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of with alginic acid)

RN 2226-96-2 HCAPLUS

CN 1-Piperidinyloxy, 4-hydroxy-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)

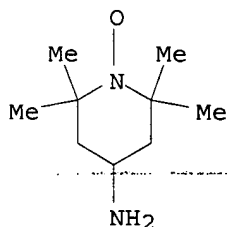


IT 14691-88-4 36775-23-2

RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, with alginic acid)

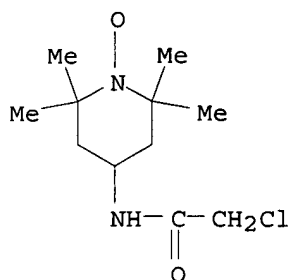
RN 14691-88-4 HCAPLUS

CN 1-Piperidinyloxy, 4-amino-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



RN 36775-23-2 HCAPLUS

CN 1-Piperidinyloxy, 4-[(chloroacetyl)amino]-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



IT 2896-70-0

RL: RCT (Reactant); RACT (Reactant or reagent)
(reductive amination of, with alginic hydrazide deriv.)

RN 2896-70-0 HCAPLUS

CN 1-Piperidinyloxy, 2,2,6,6-tetramethyl-4-oxo- (9CI) (CA INDEX NAME)

